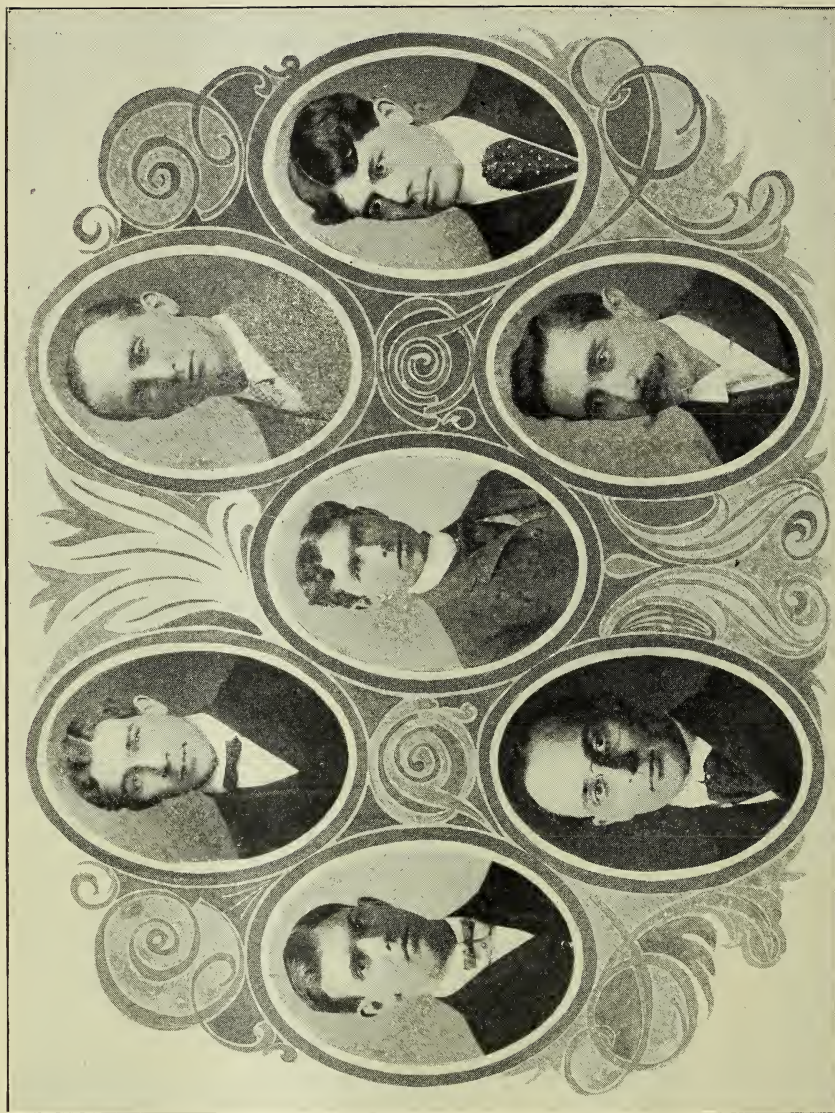


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CLASS OF 1904—AGRICULTURE AND HORTICULTURE

THE AGRICULTURAL STUDENT.

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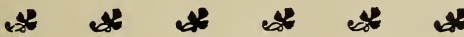
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This issue is the last of the tenth volume of this publication, and with the next volume it is probable that there will begin a new regime. It has long been felt that THE AGRICULTURAL STUDENT should be a student publication so far as the editorial work is concerned, and it is the purpose of the management to make this change for next year. The birth of an agricultural club as a technical organization, aside from that of the agricultural literary society, has given the opportunity for the students to take up this work as a legitimate part of the club's endeavor. A meeting has therefore been called to discuss methods of management, and it is hoped that next year will see the magazine truly a student publication. The character of our student body is improving yearly, and there is no reason why a most creditable publication cannot be maintained by the students alone. There is no doubt as to the desirability of the change, and there is every reason to believe that abundant success awaits the magazine under the new management.

We wish to take this opportunity to thank the members of the staff and others who have responded to our



needs during the past year, and while we are fully aware of the shortcomings that have been evident in the management of the periodical, we have endeavored throughout to maintain a standard worthy of the college which the publication represents.

Governor Herrick's use of the veto power on the \$75,000 appropriation for the College of Agriculture was a crushing blow to those interested in the development of the college. The strenuous fight that had been waged by the agricultural organizations of the State for a just recognition of the college had resulted in almost a complete victory, but a stroke of the governor's pen and all was lost.

The College of Agriculture not only lost all it had gained, but various agricultural interests of the state also suffered sadly and for reasons which seem very obscure. The fact that \$95,000 of the \$149,700 appropriated for agriculture was vetoed, makes it appear that the governor was ignorant of the necessity for developing agricultural education in the State and entirely neglectful of its agricultural interests. This assumption, however, can scarcely be harmonized with his public expressions before agricultural gatherings, nor does it seem a stroke of policy when the fact is considered that the farmers make up 40 per cent. of the population and pay 45 per cent. of the taxes. The governor's policy of economy is undoubtedly a good one, but it would seem that the agricultural interests of the State have been made to suffer very much more than their share in the paring down process.

We believe, however, that while the action of the governor will work great injury to the agricultural interests of the State for the ensuing two years, the

hindrance will be but temporary. It will certainly mean that the farmers of the State will insist upon their rights in no uncertain terms at the next session of the legislature and it will undoubtedly bring the work of the College of Agriculture and Experiment Station into much greater prominence before the farmers of the State than ever before. The general agitation of the matter which is now being made will go far toward crystalizing into definite form a widespread feeling of interest in the advancement of agriculture and agricultural education in Ohio; and while it seems that the agricultural interests have been rudely insulted, it is sure that they are much embarrassed by this action of the governor. We cannot but feel, however, that the affair will result in a strong and healthy reaction for Ohio agriculture in the next half decade.

First Meeting of the Agricultural Club.

The first regular meeting of the O. S. U. Agricultural Club was held in Townshend Hall on Wednesday evening, May 4th. The students of the Agricultural College were well represented in the audience, which was large and appreciative.

The officers of the club had made provisions for an attractive program. Mr. T. P. White first enlivened the hour by one of his high class piano selections. Professor H. C. Price in a brief way congratulated the members of the club on the success of their first meeting and spoke of the financial support recently accorded to the University by the State.

Mr. Joseph E. Wing of Mechanicsburg, O., was present as chief speaker of the evening. His lecture, entitled "Workers," was received with much interest. Mr. Wing depicted in his pleasing way some of his experiences in the

west when a young man just starting out on his own account. He laid emphasis on faithful, interested doing of one's work as an element of success in life and also told how he began to write for the press, which finally led to his present connection with one of the prominent live stock journals of the country. Incidentally he told some amusing stories and advised the young men present to have sweethearts.

Mr. L. H. Goddard, director of co-operative experiments for the Agricultural Students' Union, next addressed the club and briefly presented the work of the Union. He also alluded to the work of some alumni of the College of Agriculture and advised his hearers to be professional agriculturists in the truest sense.

The possibilities for efficient work by this Club in bringing the students together to discuss agricultural topics and to hear men of prominence in agriculture were indicated by this first meeting.

E. M.

Scientific Training in Agriculture.

We are slowly emerging from the era in which it was considered sufficient for agriculture as a part of the college curriculum to have on the faculty one man whom they might designate as the professor of agriculture. Recently much advancement has been made in the division of the general subject of agriculture into its component branches and in delegating these to different members of the college faculty, and some of our stronger universities and colleges have advanced in this direction far enough to establish in its real sense an agricultural faculty.

In considering the work of our average agricultural colleges we can see the inability to do more than give the student general instruction in the princi-

ples of agriculture. The opportunities for thorough training in agricultural science, such as is given in other sciences and in preparation for the other professions, are very inadequate. There is need of higher instruction in the different branches of agricultural science in order that there may be thoroughly trained and efficient agricultural specialists and experts. The agricultural schools and colleges are doing very efficient work in preparing men to be farmers, farm managers, teachers of the general science of agriculture and editors of agricultural journals, but the graduates of these institutions are not always prepared to do high grade teaching or thorough investigating.

The demand for men competent in agricultural science is sufficient evidence in itself of the lack of men adequately trained and familiar with the most approved and up to date methods of agricultural practice. Not only is the demand for sufficiently competent workers in our colleges, experiment stations and departments of agriculture inadequately met, but the spread of instruction in secondary schools and in our public high schools is hampered by the lack of teachers trained in agricultural subjects.

Popular opinion is so strongly in concurrence with advancement along agricultural lines that the few who are capable of doing efficient work in our institutions and experiment stations are met with demands far beyond their ability to supply. Consequently the materials for a true science are accumulating faster than they can be reduced to a systematic form. Although many books pertaining to the science have recently been published, yet there are phases of the subject which have been very superficially treated and still others which have not been touched as yet. Books of

reference have not been kept up to date with reference to agricultural research, and the study and searching out of the best methods of teaching and of equipping laboratories have not kept pace with the advancement along agricultural lines.

Progress in agricultural education and research can not be denied, but, like other great progressive movements, it needs well defined plans for the development of our institutions for education and research to meet the enlarged demands of the people for information and training.

The Department of Agriculture, especially through its office of experiment stations, has acted as a center for the collection and dissemination of information regarding the organization of agricultural education and research and methods of teaching and investigation. The Association of American Agricultural Colleges and Experiment Stations has also served a most useful purpose in both these lines of endeavor. So also was the Graduate School of Agriculture a step in the right direction, for its aim was to lay the lines and set the pace by which the workers in the cause in every state and territory of the Union should march to victory over problems and principles which would advance the cause in which they had enlisted.

The signs of the times indicate the organization of our agricultural education on a much broader basis in order that it may permeate the mass of our rural population. The people are looking to the colleges to lead in this movement; they are already offering our higher institutions large sums of money for education and research. It remains with the colleges to so meet the demands and expectations of their constituents by making their work so effective and satisfactory that the popular

confidence in their usefulness as instruments of agricultural advancement may be strengthened.

J. C. WHITE.

Class of 1904.

The class graduating this year from the College of Agriculture consists of twelve members. Five of these are from the course in agriculture, two from horticulture and five from the course in domestic science. Three members of the class in the agricultural course and one in the horticultural course accepted positions before the completion of the year and will not receive diplomas. The class in domestic science is the largest that has ever been graduated. The withdrawal of the four seniors above mentioned reduces the total number below that of last year.

We are pleased to present the following brief biographies:

AGRICULTURE.

Morris O. Bugby was reared on a farm near Kingsville, Ashtabula county, O. He attended the Kingsville High School, graduating in 1898 as honor man, entering the long course in agriculture at the University in the fall of '99. From January to September, 1903, he was herdsman on the farm, entering college again in September. He was a member of Townshend Literary Society, holding the office of president for the winter term of 1904. He was also a member of the Biological Club and served on THE STUDENT staff for one term. He supported himself largely while in College and gave much time to animal husbandry during his course. The subject of his thesis was "A Study of Variations in the Fat Content of Milk." He finished his work at the beginning of the spring term and has already entered practical agriculture, in which he is very enthusiastic.

Clifford C. Hatfield was born on a farm near Lebanon, Warren county, O. He was prepared at the National Normal University at Lebanon, entering the short course in agriculture at the University in 1899, beginning the long course the next year. Mr. Hatfield has been an active member of Townshend Literary Society, serving as its president in the fall term of his senior year. He is also a member of Alpha Zeta fraternity and of the Y. M. C. A. He has been chosen as general secretary of the College Y. M. C. A. for the coming year. The subject of his thesis is "A Study of the Development of Young Dairy Cattle." Mr. Hatfield expects to continue in Y. M. C. A. work.

Alvin S. Neale was born on a farm near Milnersville, Guernsey county, O., where he received his early education. At the age of 19 he went to Montana, where he spent two years on a ranch, being employed a part of this time as range foreman. Returning to Ohio in '91, he entered the short course in agriculture at the University and spent three years in agricultural and engineering studies. He left school for the farm and spent the years from '94 to '02 in farming and teaching in Tuscarawas county. He returned to the University to complete his schooling in the fall of '02. During his college course Mr. Neale has given much attention to animal husbandry work and represented the College of Agriculture at the students' judging contest at the International in 1903. He has also been connected with agricultural journalism during the last two years, holding the position of associate editor of the North American Farmer for six months of that time. He has acted as University farm superintendent since March 1st of his senior year. Mr. Neale has accepted the position of managing editor of the farm de-

partment of the Newspaper Enterprise Association for the coming year. This is a new line of agricultural journalism that promises much. The headquarters of the Association are at Cleveland. The subject of Mr. Neale's thesis is "The Relative Importance of the Live Stock Industry of Ohio at the Beginning of the Twentieth Century."

Modesto Quiroga was born in San Luis city, San Luis state, Argentina, where the early part of his life was spent on the ranch and farm. His first schooling was in a private school at Majada, which he attended for three years, later attending the public schools of San Luis city and graduating from the Escuela Normal de Maestros de San Luis in '93. During 1894 he acted as principal of the Elementary School No. 1 at Ramallo Buenos Aires. During '95-6 he was a student at the Escuela Normal Nacional de Profesores de Buenos Aires, graduating at the end of two years. In 1897 he again taught in the public schools, but in 1898 he was appointed inspector of education for the schools of his native state and in '99 was in charge of the chair of Spanish at the National Normal School for Teachers at San Luis. Early in 1900 he was appointed to one of the national agricultural scholarships in the United States. After some time spent in learning the language in the United States he entered the long course in agriculture at the University in the fall of 1900. During the summer of 1901 Mr. Quiroga was on the Argentine jury commission at the Pan-American Exposition. During his entire course he has been an extremely hard working student, finishing his work at the end of the fall term in his fourth year. He entered Cornell University as a post-graduate student at the beginning of the second semester, where he is now working on his master's degree. Mr. Quiroga

has given much attention to agronomy in his college course, the subject of his thesis being "The Influence of Early and Late Spring Plowing on Corn Production." As a special recognition of his ability Mr. Quiroga was elected to Sigma Xi in his senior year. He was a member of Townshend Literary Society, the Biological Club and the Political Science Club. He expects to return to Argentina the coming year.

Frank Rubins was reared on a farm near Kenton, Hardin county, O., where he received his early education in the common schools and in the Kenton High School. He came to the University in the fall of 1896, entering the short course in agriculture. After two years' work he returned to the farm and spent three years in practical agriculture, in which time he earned sufficient money to carry him through the rest of his course. He entered the University again in the fall of 1901. Mr. Rubins has given special attention to animal husbandry throughout his course. He was an active member of Townshend Literary Society and has served on THE AGRICULTURAL STUDENT staff. The subject of his thesis is "The Effect of High Feeding on the Fecundity of Animals." Mr. Rubins has been entirely self supporting while in school and has made a very creditable record.

HORTICULTURE.

James McOwen was born near Black Lick, Franklin county, O., where he received his early education in the common schools, entering the short course in agriculture in the fall of 1894. After completing this course he spent three years in practical agriculture, returning to the University in the fall of 1898 and entered the long course. He has been out of school two or three years since that time, so that his graduation has been

delayed until this year. He was a member of Townshend Literary Society, the Biological Club and the University Y. M. C. A. For the last year he has been employed as florist in the Botanical greenhouses. The subject of his thesis is "Comparative Tests in Seed Germination."

James Herbert Beattie was born at Zanesville in 1882. He received his education at Muskingum College, New Concord, O., Geneva College, Beaver Falls, Pa., and the Ohio State University. He entered the University in the fall of 1898 in the short course in agriculture. After two terms of work he left school, returning as a horticultural student in the fall of 1901. Mr. Beattie has proven himself an apt student in his college work. He is a member of the Townshend Literary Society, Biological Club, Horticultural Club and the University Y. M. C. A. His thesis subject is "Extent of Injury to Nursery Stock by Hydrocyanic Acid Fumigation." Mr. Beattie will enter the Bureau of Plant Industry, United States Department of Agriculture, on the completion of his course.

DOMESTIC SCIENCE.

Fannie A. Sullivan, New Carlisle, O., attended Bethel Township High School one year and Troy High School. Later she graduated from the Chicago College Preparatory School, entering the long course in domestic science at the State University in the fall of 1900. During the four years at the University she has shown much ability in the work of her department. The subject of her thesis is "A System of Dietaries for Hospital Practice." She has proven herself a worthy teacher at the Godman Guild.

Annie E. Batterson was born in Columbus and attended the Columbus



FANNIE A. SULLIVAN
ADA L. MEYERS

CLARA M. TANGEMAN

RUTH A. HOLLISTER
ANNIE E. BATTERSON

CLASS OF 1904—DOMESTIC SCIENCE

schools, graduating from the Columbus Central High School in 1900. The same fall she entered the four year course in domestic science. She is a member of the University Y. W. C. A. and has proven herself a thorough student while in the University and has taught at the Godman Guild. The subject of her thesis is "A Comparative Study of the Courses in Household Technology in Higher Institutions of Learning, with Syllabus for a University Course."

Ruth A. Hollister, Galion, O., graduated from Hanover High School. She spent one year at Wellesley College, entering the four year course in domestic science at the Ohio State University in the fall of 1900. She has proven herself an excellent student during her course and taught in her senior year at the Godman Guild. Miss Hollister is a member of the O. S. U. Girls' Glee Club and of the University Y. W. C. A. Her thesis is "A Study of the Proteids and Their Relation to Food Economics."

Adah L. Myers was born in Columbus, attending the Columbus schools and North High School. She entered the long course in domestic science at the Ohio State University in the fall of 1900. During the four years in the University she has done diligently the work of her department. This year she has taught at the Godman Guild. She is a member of the College Y. W. C. A. Her thesis subject is "Comparative Courses of Study and Laboratory Equipments for Domestic Science and Art in Secondary Schools."

Clara M. Tangeman, New Bremen, was educated in the New Bremen schools, graduating from that High School in 1900. She entered the four year course in domestic science at the Ohio State University and since then has diligently followed the courses in

this department. She is a member of the Y. W. C. A. of the University. Miss Tangeman has proven herself a worthy teacher at the Godman Guild this year. Her thesis is "A Study of Wool as a Textile; Its History, Manufacture and Economic Value."

Annual Excursion to the Experiment Station.

The farmers' clubs of Wayne county, O., hold an annual basket picnic on the grounds of the Experiment Station at Wooster during the month of June, at which time the field work of the Station is illustrated by the crops growing on hundreds of plots of land, some devoted to comparison of varieties of cereals and fruits and others to tests of different fertilizing materials.

The different plots are all marked with descriptive stakes, and bulletin boards over the farm explain the general plans of the different experiments, while the officers of the Station spend the day with the visitors, explaining the different lines of work in detail.

The next picnic in this series will be held on Saturday, June 11th, at which time visitors from any part of Ohio will be cordially welcomed. It has not been possible to secure a satisfactory reduction in railway rates, but parties of ten or more can at any time get a rate of two cents a mile each way. If a thousand farmers and farmers' wives and sons and daughters were to attend this picnic it would open the way for a half fare rate next year.

The picnic grounds of the Station are about a mile and a half from the railway stations, but there will be public conveyances at the trains which will carry visitors to and from the grounds at a reasonable rate. Parties who expect to attend the picnic would do well to notify the director of the Station in advance.

The Ohio Live Stock Association

The first bulletin of the Ohio Live Stock Association has recently been issued. It sets forth the purposes and aims of the Association, outlines articles of association and gives a list of charter members which numbers fifty-three. It is proposed to include as charter members, however, all who join and pay their membership fees during 1904.

Such an organization has been needed for some time among Ohio stockmen, and it is believed that the Association, as in other states, will find abundant room for profitable work in furthering the live stock interests of Ohio. Professor C. S. Plumb is secretary-treasurer and copies of this bulletin may be obtained from him by all prospective members. Among the objects of the Association as outlined in their first bulletin may be mentioned the following: The inspection, treatment and control of contagious diseases of animals; the enactment and enforcement of laws which favor the live stock interests; the promotion of live stock education by the distribution of publications of interest to stockmen; the establishment of co-operation with the State Board of Agriculture in live stock matters; the proper advertisement of the live stock resources of Ohio.

Agricultural Education in Ohio.

Education in agriculture has been largely experimental up to the present time. Thirty years ago, when the land grant colleges were beginning to offer courses of study in agriculture, the subjects had not been reduced to a pedagogical form. In different States different methods have been followed in carrying out the provisions of the land grant for giving instruction in agriculture. This has been due partly to the requirements of the State and partly to

the opinion of the men at the head of the colleges. In some states the only attempt to educate the man for the farm has been to offer a brief elementary course of lectures given during the winter months, with little regard to previous training, while students who take the regular collegiate work in agriculture are not expected to return to the farm.

Other institutions have held that these short courses are not satisfactory and that the longer and more thorough courses are best needed. Ohio has belonged to this latter class and has held that real technical training in agriculture cannot be gained except by courses of study which embrace some of the fundamental sciences as well as the instruction in the so called "practical subjects." The following table shows the relative growth of the two and four year courses in the College of Agriculture of the Ohio State University:

	Four year courses.	Two year courses.
1893-94	19	52
1894-95	38	41
1895-96	41	34
1896-97	33	44
1897-98	58	41
1898-99	53	53
1999-00	53	42
1900-01	64	49
1901-02	63	51
1902-03	88	71
1903-04	105	70

The success of these courses is best judged from the students who have taken them. An examination of the directory of alumni and ex-students will show that the graduates who have not returned to the farm are holding good positions in agricultural colleges, experiment stations and the United States Department of Agriculture, while those who have returned to the farm have be-

come leaders in their communities, and some of them leaders in the agriculture of the state.

In Ohio there is a decided tendency to take the four year collegiate course in agriculture in preference to the two year course, and a large part of the enrollment in the two year course is due to the fact that the entrance requirements for the four year course have been raised and students spend one year in the two year course preparing to enter the four year course.

The farmers of the State appreciate the necessity of a thorough training in agriculture and appreciate that this cannot be given without first mastering the elements of the fundamental sciences, such as chemistry, botany and zoology.

As the study of agriculture progresses the subject will be divided and subdivided. At present in Ohio the development of the agricultural courses of study have been along six distinct lines: (1) Horticulture, (2) forestry, (3) animal husbandry, (4) agronomy, (5) dairying, (6) rural economics and farm management. In the future other divisions of some of these subjects will occur. In the subject of agronomy, for example, are embraced three distinct lines—farm crops, soils and farm mechanics. These are all important lines, in which there is a demand for trained specialists. Much of the work in establishing these courses is largely pioneering, and the way has to be blazed; but the institutions that will give thorough technical courses and insist upon a high standard of scholarship in its agricultural courses will furnish the influential men in agriculture.

The success of the course that has been adopted in Ohio is attested by the fact that six of the present senior class before graduation have received appointments at salaries ranging from

\$1000 to \$1500 per year. The country wants thoroughly trained agriculturists, both for the farm and the profession, and they can only be supplied by a thorough collegiate course in agriculture.

H. C. PRICE.

Soils Laboratory Exhibit at St. Louis.

The Soils Laboratory Exhibit, which has been installed as a division of the Agricultural College and Experiment Exhibit at the Louisiana Purchase Exhibition, will be put in operation June 1st. The laboratory is completely equipped with all the apparatus necessary to a thorough system of soil investigation—al work, and experiments will be in progress throughout the months of June, July, August and September and probably during October and November. A large number of institutions have contributed pieces of apparatus of special interest and value and the equipment is very complete. Naturally the College of Agriculture of the Ohio State University has the largest representation of material since the laboratory was installed by a representative of that institution, but no less than ten other institutions are represented by pieces of apparatus and several others by photographs.

Mr. C. B. Hoover, '03, who is now doing work at Cornell University, will act as demonstrator and soil expert during the months of June and July and some representative of the Bureau of Soils Laboratory at Washington, probably A. G. McCall, O. S. U., '00, during the months of August and September.

The laboratory is located just inside the main west entrance to the Palace of Education and has every facility for scientific investigations and for demonstrating methods of instruction in soil work. It is hoped that agricultural educators who are interested in this line of

work may derive no little benefit from a careful examination of the laboratory, since it is representative of the most advanced soil laboratories of the country.

Levi Stockbridge.

A generation ago, in the formative stage of our American agricultural college, the name of Levi Stockbridge was a common one among agricultural educators. The recent notice in the press of the death of this man at Lake City, Fla., is worthy of more than a passing news item.

The subject of this article was born in North Hadley, Mass., in 1820, where he received the school education commonly given the boys and girls in the rural districts. He developed into a young man of shrewd judgment and became a farmer in one of the finest and most beautiful agricultural sections of New England, on the bottoms of the Connecticut river. He served as a member of the Massachusetts Board of Agriculture and took an active part in inducing the State legislature to accept the Morrill land grant and so establish the Agricultural College. In 1866 he was requested to take charge of the College property, which he did.

From 1867 to 1872 he was instructor in agriculture, and from 1872 to 1882 was professor of agriculture. During 1876 and 1877, while President W. S. Clark was in Japan organizing the Imperial Agricultural College at Sapporo, Professor Stockbridge acted as president of the College. Later, from 1880 to 1882, he served as the regularly elected president of the College. Since that time he has been professor emeritus of agriculture.

Professor Stockbridge was a student and a man of an investigational turn of mind, and, while he never had the ad-

vantages of a scientific training, he took an active part in scientific investigation of importance. He became greatly interested in the relationship of soil fertility to crop requirements and the needs of special applications. During 1868, 1869 and 1870 he experimented considerably, endeavoring to supply plants the constituent element needed. This led up to the widespread use of chemical fertilizers in Massachusetts.

Mr. W. H. Bowker, an old student of Professor Stockbridge and a young graduate of the College, began manufacturing Stockbridgt fertilizers in Boston. From this beginning has developed the immense Bowker Fertilizer Company, and for many years Professor Stockbridge received a royalty on all goods made by this firm under his original ideas. The first royalty of \$1000 that he received he gave to the college for the establishment of agricultural experiments. This money was used for experiments for growing sorghum to study sugar production in Massachusetts and for studying the action of water by drainage through the lysimeter. The lysimeter was an enclosed area of soil undisturbed, yet boxed and in natural position. All moisture deposited on its surface was lost by evaporation or caught in drainage below in bottles or jars. The lysimeter idea was adopted from Lawes and Gilbert at Rothamsted, and, as I now recall, the one constructed at Amherst was the first one built in America. A few lysimeters only were installed in this country, and these never became satisfactorily understood as subjects of investigation.

One of the celebrated experiments Professor Stockbridge assisted in conducting, along with President Clark, was on the force exercised by growing plants. A squash was harnessed in steel bands in the Durfee Plant House of the

College, and the growth and development and force shown by this squash attracted national attention. This experiment was elaborately described in the college reports of that day, this being along in the seventies. A cast of the harnessed squash is now preserved in the College collection at Amherst.

Professor Stockbridge also experimented on other problems of interest, especially on the movement of water through the soil and on the deposit of dew, using instruments of his own design in these studies.

The subject of this sketch stood high in the esteem of all who knew him. He had served in the Massachusetts legislature, on the State Board of Agriculture, had been town selectman in Amherst for years and was one of the prominent citizens. He stood for all that is best in New England tradition, and was one of the rugged type of Yankee that gave character and strength to citizenship.

The writer can now look back a quarter of a century and see in memory "Professor Stock," as we all knew him, keen eyed, watching a class of lively students husking corn or grubbing out stumps under his supervision, as a feature of what was known as "class work" or what some would today term a practicum. That was pioneer work in agricultural education, such as will never occur again in the United States in our colleges and higher institutions of learning. Professor Stockbridge did valuable pioneer work and the value of his services to the Massachusetts Agricultural College in its early history were generally recognized by those familiar with the career of the College. In his time as a professor he was very popular, as may be illustrated from this quotation from the old drinking song that had been improvised to apply to the several

members of the small faculty of those days:

"Here's to old Professor Stock;
He's as solid as a rock!
Drink him down," etc.

Professor Stockbridge left several children, one son, Dr. Horace E., having been for years intimately identified with agricultural education, serving as Professor of Chemistry at the Imperial College of Agriculture, Sapporo, Japan, director of Indiana Agricultural Experiment Station, president of the North Dakota Agricultural College and director of the Experiment Station there, and for some years, until recently, Professor of Agriculture in the Florida Agricultural College at Lake City, where his father died.

With the death of Levi Stockbridge passes from the scene almost the last of the old pioneer agricultural educators of the last century, a type and class of men that did valuable work for their day and generation.

C. S. PLUMB.

Improvement of Farm Crops.

The systematic improvement of farm crops is a matter which has not received very careful attention on the part of the average farmer. It is true that he does, in an unconscious way, improve certain ones, but he does it with no definite end or ideal in view, and only as a means of keeping his present standard. Thus he selects from his crib or granary the most likely looking ears or grains, not with the purpose of bettering his yield each year until he has reached a standard of excellence, but merely to procure as good a crop, other things being equal, as in preceding years.

This custom often produces unlooked for improvements, but there is no certainty in such loose methods, and the chances for continued improvement are

not nearly so great as they would be if systematic and persistent efforts were used.

There are many things which should be considered in the effort to better farm crops. No financial benefit is derived from spending years of painstaking care in improving a crop or the variety of a crop for which that market has no use and for which the soil and climate of that locality are not well adapted. The farmer should study carefully their adaptability to these conditions; then, with his ideal or fixed type firmly in mind, he should strive diligently and patiently in that direction.

There are no two plants in nature exactly alike. Two grains from the same variety, from the same ear of corn or head of wheat or oats or timothy, may each produce a plant which differs largely from its mate. Nature causes many variations, yet in these differences may be detected qualities which are characteristic of the plant from which the seed was taken. Thus it is seen that plants have individuality, a very important factor in crop improvement.

The most important part in improvement methods is selection. In beginning, the best there is at hand should be chosen, and thus years need not be wasted in accomplishing what has already been done. Large numbers are essential, as there is more chance for variation and a wider range for selection for the following year. Great judgment and care must be exercised in determining those plants which are best, most likely to transmit their good qualities and conform most closely to our ideals.

One hundred or one thousand seed may be planted as nearly alike as possible. At the very start some appear before others. Here is something to be noted. If they keep this lead and mature before the others, there is a

chance, by continued selection, to produce a grain of earlier maturity. Some of these earlier ones, however, may grow too much to stock or vine or vary otherwise in an undesirable way; others may produce seed at the expense of stock, while others may be more nearly in proportion and have some of the fixed qualities towards which one is working. Careful selection is again made, and again some show an individuality approaching more closely towards the ideal.

In the meantime systematic methods of testing and recording qualities must be used, so as to secure superior plants. Careful and uniform cultivation must be given them; weak and strong points must be carefully noted. The whole plant is more important than any one part of the plant, and the more uniform the plant in all its parts the greater is the likelihood that it will transmit its characters.

Crossing is often used in improving plants. It is important in increasing variations, both towards better and also towards poorer plants, so that a larger range for selection is given. Excess of plant food and methods of cultivation also induce variation in plants, but these processes should be left to the professional plant breeder, who is interested in producing new varieties, rather than to the average farmer, who is only interested in improving those crops which have been found to be best fitted for his locality and not with methods which may never be of financial gain to him.

The improvement of farm crops over the wild state has been great, and as improvement is continued the change will be still more marked. The principal countries of Europe, where careful methods of improvements have been carried on for a great many years, show wonderful gains in crop productiveness.

They have increased the per cent. of sugar in the sugar beet 100 per cent. In England the average yield of wheat per acre is thirty bushels, while in the United States it is only fifteen bushels per acre. Of course this increase is partly due to the length of time it has been cultivated there and to their moist climate, but it is largely due to the selection and breeding which has been carried on during a longer period of years than has been possible with us.

While selection and breeding methods have not had much attention for a great length of time in this country, yet wonderful results have been accomplished. By careful selection and cultivation the yield of corn was in one instance increased two bushels per acre in two years. It has been estimated that if one-tenth of one per cent of the value of the corn crop were used by the government in breeding corn the increase would be 10 per cent. Equally as wonderful results may be expected with other crops, and as the years go by and crop improvement increases we may expect larger returns and greater profits.

N. E. SHAW.

New York's Agricultural Bill Signed.

The signing of the New York Agricultural College bill by Governor Odell on May 10th was the cause of a huge celebration at Cornell University when the news was received. Almost 2000 students participated in the celebration, showing that the matter was considered a university victory and not merely a victory for the College of Agriculture. The students formed in ranks and, headed by the University Band, marched to Dean Bailey's residence, where he was called out for a speech. They then proceeded to the campus, where an immense bonfire was built and great demonstrations of enthusiasm were made.

A banquet in the Armory followed, at which many important men interested in the College of Agriculture gave toasts.

The bill calls for \$250,000, which is to be used in the construction and equipment of five new buildings for the College. The old dairy building has been purchased by the University and will be used as the wing of a new building for one of the other colleges, another dairy building in a different location being proposed. Much pressure had been brought to bear on the governor to veto the bill, but the friends of the measure won the day. This appropriation will go far toward placing the Cornell College of Agriculture in its proper place among well equipped agricultural colleges.

Dairy Notes.

The charge is often made that agricultural students do not follow agricultural lines of work after leaving school. Records of the Ohio Agricultural College show that over 80 per cent. of its students follow agricultural pursuits. As to those who take the dairy course, almost all engage in work of that nature.

Students of the last Ohio dairy class are located and at work as follows:

Sam H. Arney is making butter in a new creamery at Greenfield, O.

Robert Allen is working in a sanitary milk plant at Findlay.

Floyd Bartholomew is helper to Leon D. Smith, a former student, at the Garretttsville creamery, owned by the Belle Vernon Dairy Co.

T. L. Bates is working for French Bros. at Lebanon.

F. C. Bentz is making cheese at Hudson.

C. A. Breining is making cheese for F. H. Hudson in Portage county.

L. W. Brintnall is working in a creamery at Lester.

Clarence W. Ealy is working on his father's dairy farm at Black Lick.

Fred Hackman is making butter in the Crouner Dairy Co.'s creamery at West Jefferson.

Clarence Hoskins is making butter at Wilmington.

F. P. Mills is making butter for A. Muth at Chatfield.

Wesley Netz is making butter at Pettitville.

Byron Owen is working on a stock farm at Wagram.

William G. Rehl is at Zanesville, interested in building up a sanitary milk plant on his farm at Zanesville. Since the dairy school closed he has bought several head of Guernsey cattle.

Edwin H. Russell is making cheese for the Herrick Cheese Co. at North Amherst.

William Sagar is working in the Belle Vernon Dairy Co.'s creamery at North Eaton.

Reno Sagar is operating a skimming station at Jersey Summit Station creamery.

J. H. Seachrist is making butter at Hageman, O.

A. B. Sill has charge of Albert French's dairy farm at Lebanon, O.

Charles L. Skinner is at work on his father's dairy farm at Gould, Ashtabula county, O.

Martin A. Smith is working in L. L. Main's cheese factory at Tiskileva, Ill.

C. I. Smith is making butter in the creamery at Eaton, O.

Howard Sparahawk is at work on a dairy farm at Tallmage, O.

A. A. Turner is doing dairy work at Wilberforce, O.

Clifton Weaver is helper in the Summit Station creamery with Clifton Hynes, a former dairy student.

Harry Williams is on a dairy farm at Gahanna, O.

Maynard Wolcott is operating a skimming station at Blueball, O.

W. D. Simms, the creamery man at Worthington, who came in for part of the work, is making butter at Worthington.

Besides these dairy students,

Mr. J. W. Parkinson is making cheese in the B. B. Herrick factory at Wellington.

E. D. Holl is making butter at New Washington.

William G. Van Meter is night foreman in the new sanitary milk plant of the McJunkin-Straight Dairy Co. at Pittsburg.

A typographical error occurred last month. The Babcock pipette is 17.6 c. c., not 16.6 c. c.

New Course in Highway Engineering.

The Rhode Island College of Agriculture and Mechanic Arts will next year begin offering a full college course of four years in highway engineering. It has been becoming more evident each year that some instruction in highway construction should be given as a part of our technical courses in the colleges of agriculture and mechanic arts, but Rhode Island is the first to offer a full course in this line of work. The steady development of the good road movement throughout the country is creating a demand for men trained in road construction. Several agricultural colleges already give courses in rural engineering which include road building, but the men trained in these courses are not properly prepared for many of the

problems encountered in practical road building.

Professor Laurence I. Hewes will have charge of this new course. Professor Hewes is thoroughly equipped as an engineer and as a mathematician and has had much experience in road building under various circumstances. He is a man of much ability and a firm believer in the good roads movement. He has prepared a most thorough and practical course, and arrangements have been made whereby students will be given practical work on highways during their senior year. The institution of this course is a marked step in advance in uniting rural and engineering pursuits and the value of such a course will readily be appreciated by all familiar with the care necessary in the proper construction of good roads.

Alumni Notes.

F. P. Stump, '92, has accepted the position of manager of the Wickliffe Farms, near Austintown, O. The position is a most important one, since this agricultural undertaking is one of the largest in the State. This serves as an example of the possibilities that lie before well trained agriculturists in practical agriculture.

L. A. Kolbe, ex-'01, is now in the employment of the Bureau of Soils, United States Department of Agriculture, and is stationed at Statesville, N. C., working under J. C. Britton, '98, who is chief of a party for special soil investigations in that locality. Mr. Kolbe passed the civil service examination in soils last November.

C. C. Loomis, ex-'05, is engaged in practical agriculture near Scotch Ridge, Ohio.

F. W. Shaeffer, '01, is dairy farming near Hilliards.

John S. Parsons is engaged in practical agriculture near Rootstown, O. He is giving much attention to dairying and potato growing.

Frank Ruhlen, who is managing a large dairy farm near Washington Court House, reports a prosperous dairy business and a bright outlook.

J. C. Zollinger is engaged in the breeding of Angus cattle near Thornville, O.

University News.

Mr. A. S. Neale, a senior in the Agricultural College, and farm manager since March 1st, has accepted the position of managing editor of the Newspaper Enterprise Association of Cleveland. He takes up the position on July 1st.

Professor M. F. Miller made a trip to St. Louis last week in connection with his duties in preparing the soil exhibit at the Exposition.

The minstrel show given by the University Glee Club on April 27th was quite the thing, and all attending fully enjoyed it. The program consisted largely of gags and jokes on the professors and students and excited any amount of merriment.

The ninth semi-annual battalion hop was held in the Armory on April 29th. Of all these dances this one stands paramount. The night was beautiful, but still the crowd was not in excess and all present enjoyed a very delightful evening.

This year's senior class will leave as a memorial an oil painting of Dr. Thompson. The painting will be made by Mr. Silas Martin, one of the instructors in the department of architecture and drawing.

The total registration for the year has been over 1800. This is a considerable increase over last year.

In the interliterary contest Miss Celia Schanfarber of Philomathean won. She delivered a beautiful oration on "The Battle of the Strong." It was a portrayal of the struggles of the Jewish people to perpetuate their nationality and faith. Mr. Dwight W. Weist, representative for Townshend Literary Society, took second place. Miss Schanfarber will represent O. S. U. at the intercollegiate contest at Delaware on May 20th.

The baseball team has been having quite a strenuous time this season. Mishaps of all kinds have been happening to the men. Patterson, Bellows and Heise have suffered from sprained knees and ankles. In the series of games so far played O. S. U. has lost to Indiana, Delaware, Dennison and won from West Virginia, Kenyon and Oberlin.

Dr. Linhart, who all former students will remember, has resigned his position as director of the gymnasium. There is some talk that Al Sharpe of Yale may succeed him.

Dr. Hagerty was recently made the head of the department of economics and sociology to fill the place left vacant by the late Professor F. C. Clark.

General Agricultural News.

The Association of American Agricultural Colleges and Experiment Stations will meet during the week of Oct. 30th, probably at Des Moines, Ia.

A report of the permanent organization of the Ohio Live Stock Association, including its list of members and articles, has been issued as Bulletin No.

1, copies of which may be had on application to the secretary, Professor C. S. Plumb, Columbus, O.

The Civil Service Commission announces an examination on June 4th to secure eligibles to fill a vacancy in the position of chemist in the Bureau of Chemistry of the Department of Agriculture in connection with the inspection of foreign food products, at a salary of \$2000 per annum, and vacancies in the position of chemist of like character in equal or lower grades as they may occur in that department.

Purdue University has dedicated an assembly hall, erected at a cost of \$20,000, the gift of Mrs. Eliza Fowler.

A farmers' co-operative harvesting machine company has been organized at Springfield, O., with the object of giving the farmers a hand in the manufacture of their own machinery. It has been incorporated with a stock of \$500,000, with a privilege of raising to \$5,000,000. Mr. O. E. Bradfute was elected president.

A movement has been set on foot in northeastern Ohio by the United States Telephone Company to furnish daily weather forecasts by phone to each of its patrons. Such a plan is in operation in Iowa, and there is no reason why it cannot be extended to the whole State of Ohio.

The National and International Good Roads convention was held in Music Hall, St. Louis, May 16-21. Addresses were delivered by Secretary Wilson and various prominent men throughout the country who are interested in good roads.

Professor W. J. Kennedy of the Animal Husbandry Department of the Iowa

Agricultural College has been granted a year's leave of absence, which he will spend in Europe studying the conditions of the live stock industry for the United States Department of Agriculture. Professor Rutherford, assistant professor of animal husbandry, will act as head of the department during his absence.

Secretary Wilson has issued an order prohibiting the importation of hay and straw from any country of continental Europe, the idea being to prevent the importation of the foot and mouth disease.

Professor J. H. Skinner of Purdue University, accompanied by an advanced class in animal husbandry, recently made a trip to the University of Illinois to inspect the work of the Animal Husbandry Department of the College of Agriculture. Much interest was shown by the Purdue students in the Illinois work and a very cordial welcome was extended them by the Illinois faculty and students. This is one of the first instances where a class from one agricultural college has visited another for the purpose of inspecting the work of the institution and should set a precedent which will be followed in many cases hereafter. Some rather indefinable feeling of strangeness or jealousy seems to exist between many of our colleges which is far from conducive to the most rapid development of agriculture. A friendly interchange of ideas and visits between different schools in this way is most commendable.

The rapid spread of the cotton boll weevil in the cotton belt is still the cause of extreme anxiety. The insect lives within the seed safe from all ordinary means of extermination. The progeny of a single pair may reach 30,-

000,000 individuals in a season. It is estimated that the loss due to this insect in 1903 was \$15,000,000, and that if it becomes spread over the entire cotton belt the loss will be \$25,000,000 annually. Most radical measures are being taken to check its progress.

Professor C. G. Hopkins of the Illinois College of Agriculture recently accompanied his class in soils on a trip to Southern Illinois where the Station is conducting a large number of soil experiments. Special accommodations were accorded the party by the Illinois Central Railroad.

"The Veterinary Adviser."

Doubtless many readers of THE STUDENT have procured the little book, "The Veterinary Adviser," of which much is said from time to time in stock papers. Those who have not will profit by sending for it. It is an admirable little veterinary guide, sent free to those who specially request it by the Zenner Disinfectant Company, 87 Bates street, Detroit, Mich., proprietors of the celebrated Zenoleum Disinfectant, Sheep-Dip and Lice Killer, advertised in this issue. The intrinsic worth of Zenoleum in the live stock world is everywhere recognized. The book sets forth its claims in a practical way in a language that the ordinary farmer will have no difficulty in understanding. Practical stock raisers and eminent live stock authorities have recommended it. The book shows what people, who have a right to know, say about Zenoleum. If anything more than the book's discussions and methods of treating animal ailments is necessary, you may read the exact words of testimony from government Experiment Stations, Agricultural Colleges of various States and experienced stock men as to the merits of Zenoleum. The work is a practical treatment of common everyday ailments of all branches of the live stock family. Look up the Zenoleum advertisement elsewhere and then do not fail to send for the Zenoleum "Veterinary Adviser."

Editorial Extracts from the Agricultural Press on Governor Herrick's Veto of the Appropriation for the College of Agriculture.

The agricultural press of the country has devoted a great amount of space to comments on Governor Herrick's action in vetoing the appropriation for the College of Agriculture, and we reprint extracts from some of the periodicals which are most widely circulated and influential among the farmers of the State. These extracts are fair examples of the comments.

Ohio Farmer, May 21st:

"We have spent several hours studying and footing and combining the items in the general appropriation bills and trying to classify them so as to explain, if possible, the governor's veto or vetoes. We classify as follows:

HIGHER RESEARCH AND EDUCATION.

Institutions.	Appropriation.	Am't of veto.
State Ag'l College....	\$75,000	\$75,000
State Dairy Asso.....	4,000	4,000
State Ag'l Ex. Sta....	68,700	15,000
State Hor. Society....	2,000	1,000

Totals	\$149,700	\$95,000
Wilberforce (colored).	\$91,800	\$4,800

Ohio State Uni.....	\$210,000
Miami State Uni....	105,000
Athens State Uni....	82,750
Geol. Survey, etc....	55,700

Totals	\$453,450
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INSANE HOSPITALS, ETC.

Athens.	\$331,500	\$40,000
Cleveland	474,800	1,000
Columbus	531,000	15,000
Dayton	494,200	50,000
Longview	333,000
Massillon	511,080	7,200
Toledo	550,580	24,000
Gallipolis Epileptic	404,000	38,000

Total	\$3,630,160	\$175,000
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Ohio Nat. Guard....	\$604,360	\$44,180
Canals, etc.	205,775	15,000

Several things in the above seem hard to explain. Reducing to percentages, we find that (but cannot see why) he vetoed 63 per cent. of the entire appropriations for higher agricultural research and education, 5 per cent. for higher negro education and none out of \$453,000 for higher education outside of agriculture. The farmers pay about 45 per cent. of the general state, county and local taxes. They constitute about 40 per cent. of the entire population. The total appropriated for higher agricultural education and research was \$149,700 as against \$453,450 for higher education and research in other lines. Why should he veto 63 per cent. of the former and none of the latter? * * * To us it seems that his adverse action towards agriculture, pointed out above, demands some sort of explanation from him, the nature of which we cannot imagine. Unexplained, that action seems insulting and vindictive towards the most important industry and one of the most intelligent classes of men in the State."

National Stockman and Farmer, May 12th:

"The friends of agriculture in Ohio were treated to an unwelcome surprise last Saturday when the announcement was made that Governor Herrick had vetoed the agricultural appropriations, striking out the following items from the general appropriation bill:

College of Agriculture, O. S.	
U.	\$75,000
Experiment Station	15,000
State Dairy Asso. (two years)...	4,000
State Hor. Soc. (one year).....	1,000
Total	\$95,000

"The above appropriations were granted by the legislature by good ma-

jorities, and no one except the governor dreamed that they would be lopped off by the veto ax. But they have been cut off. They are "gone, but not forgotten," as the obituaries say. Nor will Governor Herrick find that he has been forgotten when he hears the protest that must reach him on account of his attitude toward the things which the farmers of Ohio want and need to enable them to keep their place in the line of progress. We hope that every organization in the State will memorialize Governor Herrick on this subject. Not that it may or can affect the appropriations just vetoed, but to show him something of which he seems to be entirely ignorant—the interest the farmers of Ohio have in their institutions.

"Ignorance of the sentiments of the people must lie at the root of several acts of the governor in the short time he has been in office, unless he be a specimen of that rare bird a deliberate political suicide. And it is the duty of agricultural organizations, farmers and stockmen to enlighten him. Speak out, for the sake of the future of agriculture in the Buckeye State."

Breeders' Gazette, May 18th:

"Bad in principle, bad in policy, bad in politics is Governor Herrick's action in vetoing the \$95,000 appropriated by the Ohio legislature for improvements at the Ohio College of Agriculture, for special work at the Ohio Experiment Station and for the State Dairy and State Horticultural Associations. And he will likely discover the truth of this statement. Ohio farmers have more than once given proof that they esteem their personal rights above party preferences. These appropriations were vetoed without a word of warning to the interests involved. The legislators raised no serious objection to passing them. The reasonable character of the claims

was pronounced. Buckeye farmers should acquaint themselves fully with the facts connected with this eleventh hour slaughter of their interests and act so that its recurrence will not be probable. The annual support of the College of Agriculture is not touched by this veto, but it will now be impossible to acquire the additional farm buildings, live stock and land required by the expanding work of this institution."

Prairie Farmer, May 19th:

"Occasionally we see the veto power that is vested in the governors of our various States so flagrantly abused as to raise the question of the advisability of some modification of the present system. No matter how carefully, laboriously and conscientiously a legislative assembly may do its duty by the people it represents, its work may be brought to naught by this one man. However faithfully the people may be represented by the many individuals composing this body, the fruition of their hopes or the supplying of their very needs may be annulled by the stroke of a pen in the hands of a governor influenced by some ulterior motive or who is ignorant of the subject he is passing upon. Word has just come to us that the old Buckeye State, the home of so many illustrious statesmen, has an experience of this kind to record. About a half hour before the expiration of the ten-day limit whereby the appropriation bills passed by the recent legislature would have become laws without the governor's signature, Governor Herrick, without a word of warning, vetoed the entire appropriation for the College of Agriculture. The legislature had made a total appropriation to the University of \$285,000, and the \$75,000 for the Agricultural College was the only item vetoed on this list. The appropriation for the College of Agriculture, besides pro-

viding for buildings, live stock and land that should have been provided for years ago, included the \$15,000 for the Experiment Station at Wooster for special work in entomology, botany, chemistry, horticulture and for field experiments, the entire appropriation (\$4,000) for the State Dairyman's Association and the \$1,000 appropriated for the use of the State Horticultural Society in 1905. The most charitable view of the situation is that the action was due to gross ignorance on the part of Governor Herrick, but it is very difficult to conceive how such a view is possible."

Indiana Farmer, May 21st:

"It appears that agricultural education is having a struggle for better conditions in Ohio, which is a surprise. Governor Herrick vetoed the appropriation of \$75,000 that had been made for the College of Agriculture of the Ohio State University, \$15,000 appropriated for the Agricultural Experiment Station at Wooster for special work in entomology, botany, chemistry and horticulture and for field experiments, \$4,000, the entire appropriation, for the State Dairyman's Association, and \$1,000, the appropriation for 1905 for the State Horticultural Society.

"The appropriation for the College of Agriculture of the Ohio State University was a part of an appropriation of \$285,000 that had been made by the legislature for the University.

"The Grange and other agricultural organizations had been especially active in securing the appropriation. At their annual meetings they had passed unanimous resolutions asking for such an appropriation, and their legislative committees appeared before the finance committees of the legislature in behalf of the appropriation.

"There is no question that the governor has followed a wise policy of economy in the management of the State in-

stitutions, but he has also completely ignored the wishes of the farmers of the State in cutting out the appropriations for their own interests while they are left to pay the bulk of the taxes of the State.

"It is a rather remarkable circumstance that Ohio agriculture must meet such defeats, considering how strong and intelligent the great agricultural classes of that State are. Especially is this so in a State that has made most liberal appropriations conserving her institutions and other industries, secondary to the basal ones of agriculture and the development and building up of more intelligent agricultural methods."

Chicago Daily Drovers' Journal, May 9th:

"Governor Herrick vetoed the portions of the general appropriation bill carrying money for the benefit of the farmers of the State. In all \$95,000 is cut out. This amount was divided so as to provide \$75,000 for a much needed building at the University, \$15,000 for a sub-Experiment Station, \$4,000 for the State Dairy Association and \$1,000 for the State Horticultural Society.

"We have been credibly informed that the reason of this action was that he wanted to "reduce expenses." As is usual with the men who have little appreciation of the use of agriculture and a belittled idea of the importance of the tiller of the soil, the farmer is thrown into the background in spite of the fact that rural residents pay a greater per cent. of the taxes than any other class of people.

"Governor Herrick should and will most assuredly hear from his rural constituents on his action thus taken. We do not believe that farmers of Ohio, any more than those of other States, will stand still and see their best interests utterly ignored."

North American Farmer, May 15th:

"All good citizens endorse the policy of the governor in insisting upon economy in the management of the State institutions, but there is a withholding that is not economy, but is simply bad business judgment. The governor's act in striking out all these appropriations is an act of this kind, and in it he opposes and utterly disregards the judgment of the majority of the farmers of the State who are familiar with the work of the organizations and institutions affected.

"All of them are doing a vital work in the industrial development of the State, and the work of all has been conducted with the strictest economy and certainly with more than average business sagacity. Good business judgment, after careful investigation by the finance committees of both houses, dictated that the appropriations be made. For the governor to strike them out without any conference with the men familiar with the work to be done savors of rashness."

The Rural New Yorker:

"Governor Herrick of Ohio tossed a bombshell on the point of his pen into the ranks of the organized farmers of that State. The last legislature made liberal appropriations for agriculture, including \$75,000 for buildings, stock and land at the Agricultural College. There was no serious opposition to the

appropriation, for Ohio was supposed to be one of the states which recognize the right of the farmer to a trade education. It seems that the legislature appropriated in excess of the State's revenues, and Governor Herrick proceeded to even things up by pruning with the veto knife. This is the extent of the stab he gave agriculture:

College of Agriculture.....	\$75,000
State Ex.Sta. (for sub-station) ..	15,000
State Hor. Soc. (for expenses) ..	1,000
State Dairy As. (for expenses) ..	4,000

Total vetoed\$95,000

"We are not at this moment prepared to say whether appropriations for other interests were cut in the same proportion, but it does not seem likely." The farmers of Ohio seem to have made the mistake of trusting the governor. They should learn a lesson from the recent agricultural campaign in New York and put in the best of their fight in showing the governor that every item of that appropriation was a straight business proposition. We have heard much about the organization of Ohio farmers, but Governor Herrick does not seem to have much of an idea of their power. He is decidedly in need of political advice as well as instruction in the value of agricultural education. Ohio farmers will learn, if they do not know it now, that no one is going to do their work for them and that they must make their just needs the paramount issue."

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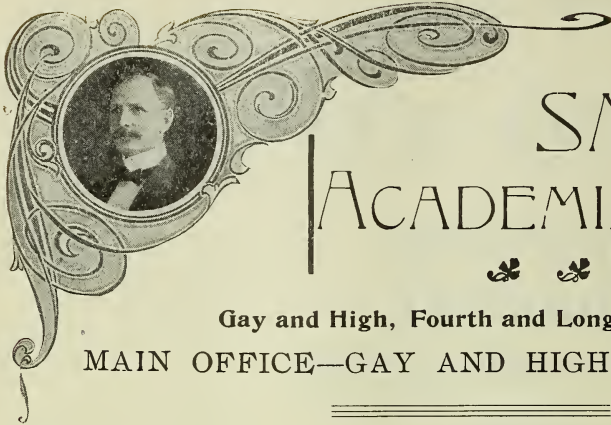
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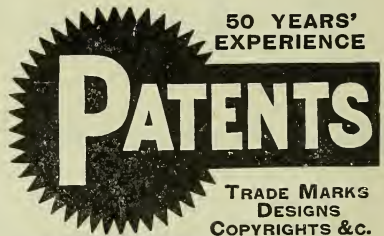
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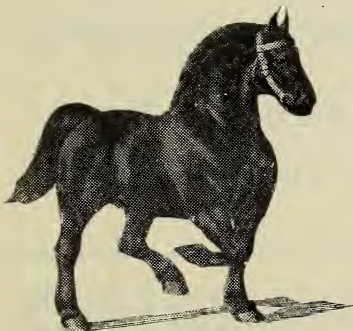
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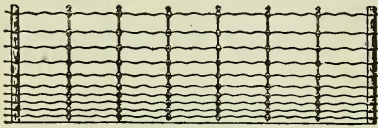
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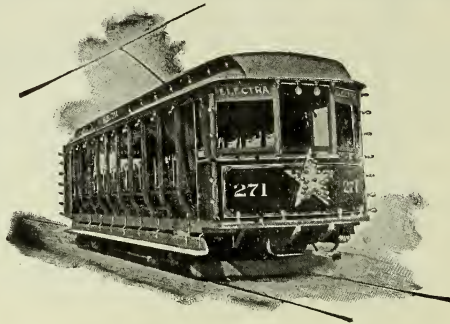
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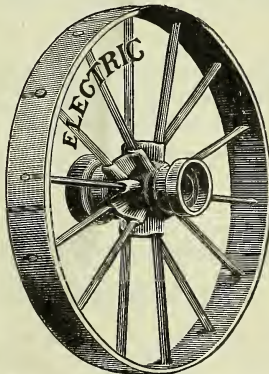
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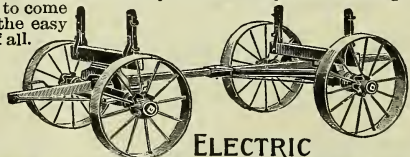
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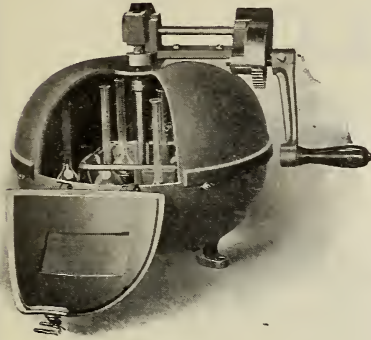
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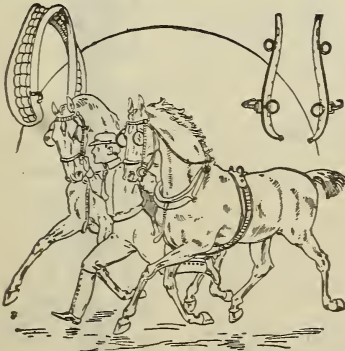
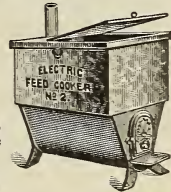
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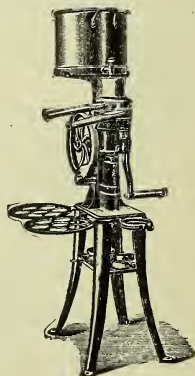
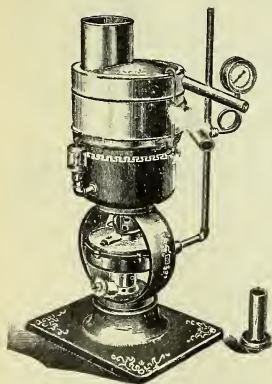
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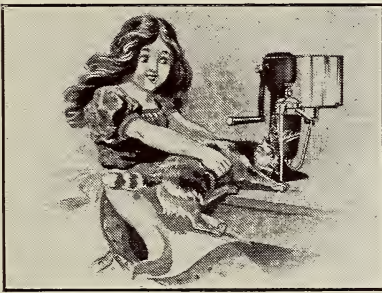


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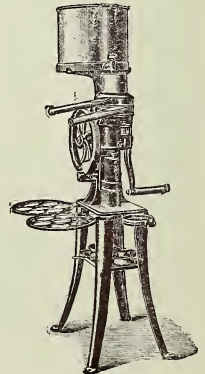
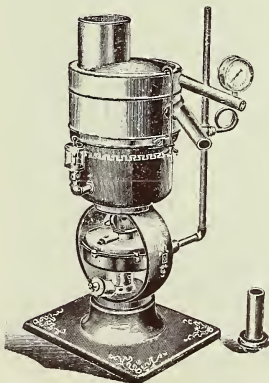
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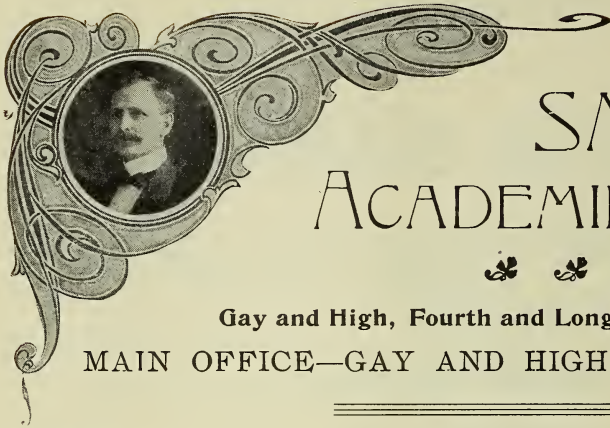
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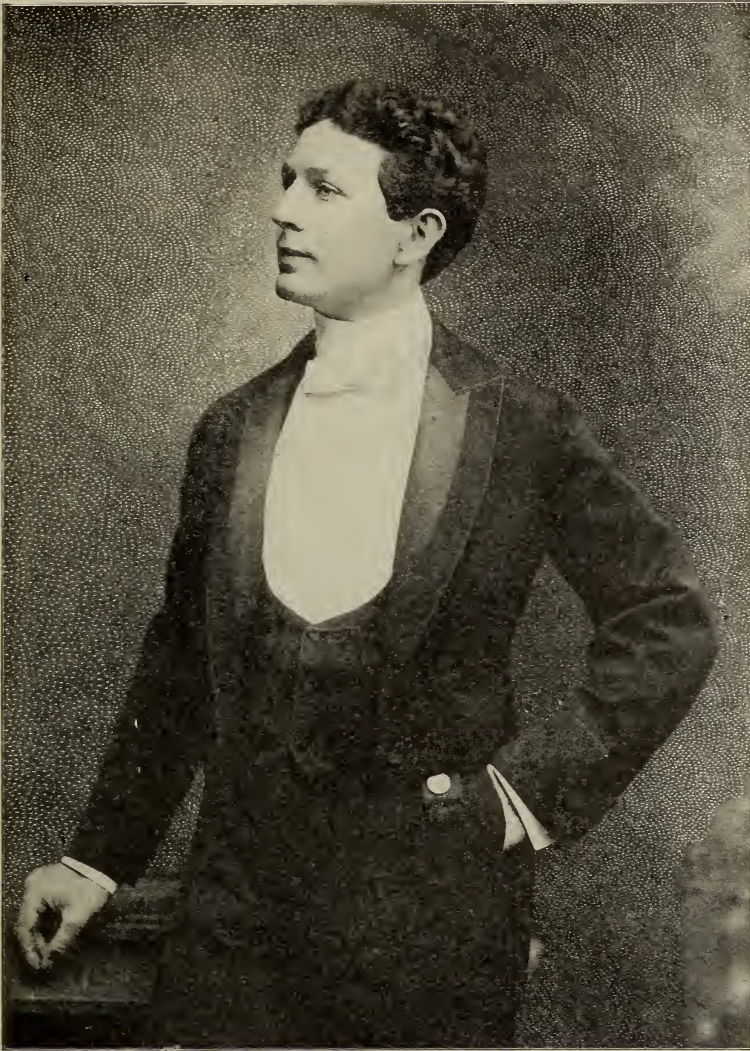
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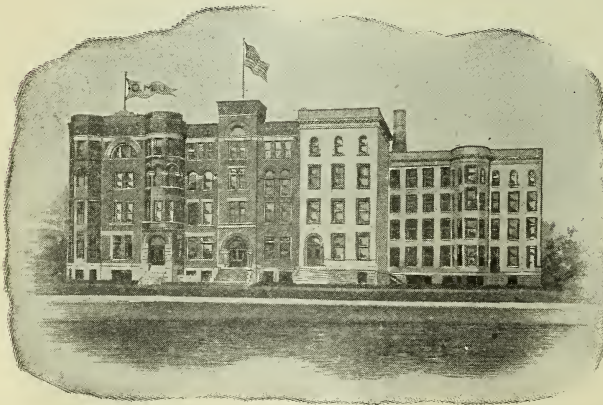
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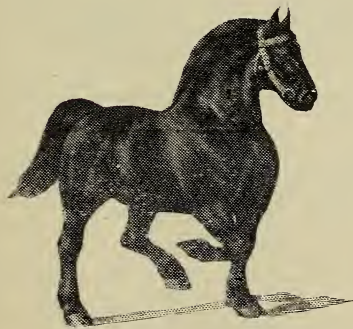
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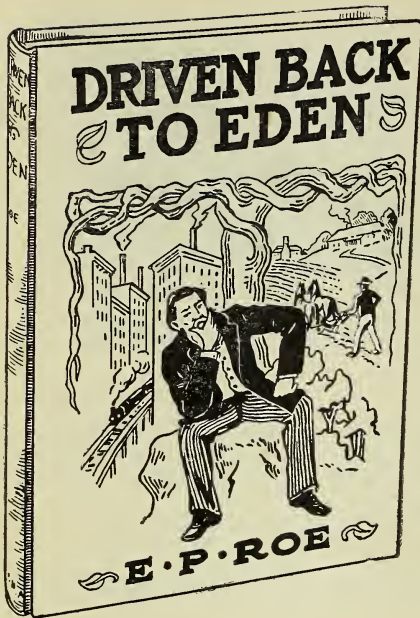
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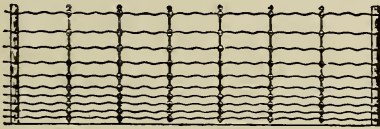
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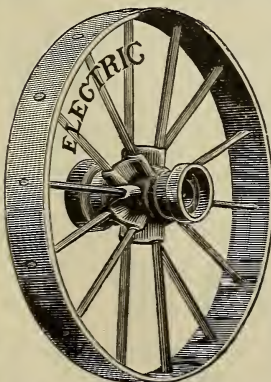
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Every State Institution, Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls the lines to Westerville and Arlington. The latter are delightful suburban rides.

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as judged by their reputation and increasing popularity are

The Best Metal Wheels.

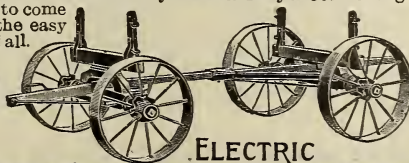
They are made with either direct or staggered oval steel spokes. They are made in any desired height from 20 in. up. They are all broad faced tires, from 2 to 8 inches wide, and

They Will Fit Any Wagon Made.

They are stronger than wood and cannot get loose, break down, rot up or go to "spokes." A set of these wheels makes the old wagon new. They don't cut up the farm either and make the load draw easy.

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are just what their name implies. Low down easy to load handy wagons. The most convenient thing for all farm hauling. Save the labor of an extra man in loading most things. Guaranteed to carry 4000 lbs. They are low enough in price to come within the easy reach of all.



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This is a non-poisonous coal tar preparation of great strength. It is a certain remedy for lice and skin diseases on live-stock, cures wounds, sores. Kills ticks. Prevents abortion and is really——

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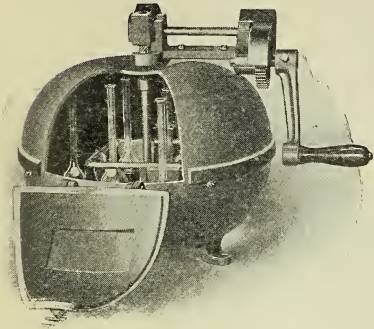
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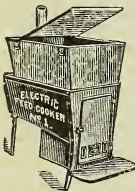


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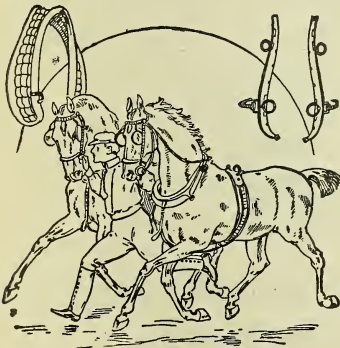
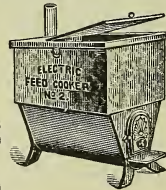
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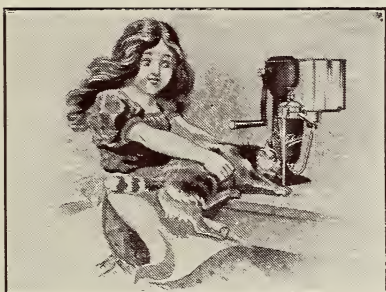
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Will commend themselves to him because they are simple—having no complications in the bowls; because they are scientifically correct—delivering a smooth, untainted cream, and reducing the records of other machines one-half; because they are mechanically correct—having a non-vibrating, non-binding bowl suspended from a single ball bearing, enclosed gears running in a mist of oil, and a bottom feed that avoids mixing the new and partially separated milk; because it turns easily—washes easily—has a waist high supply can—needs little oil and few repairs.

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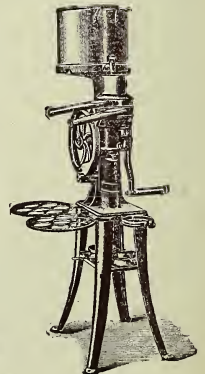
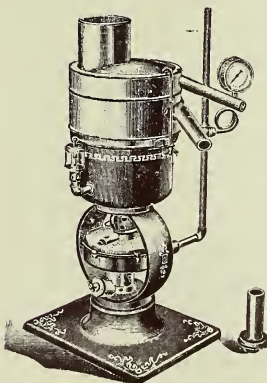
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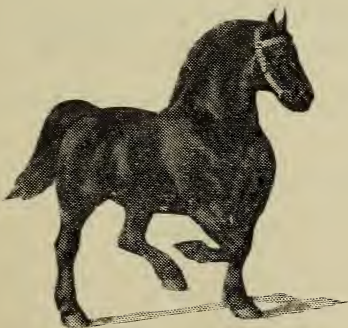
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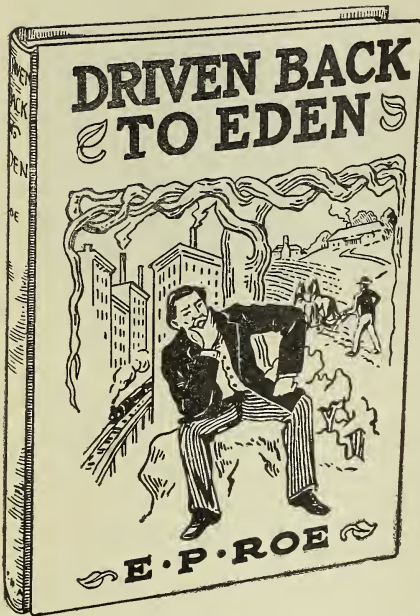
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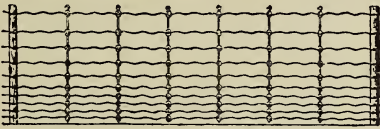
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A set of Low Steel Wheels with Wide Tires, or the Electric Handy Wagon with Low Wheels will save 5 times their cost in one year.

That's what our Low Steel Wheels with Wide Tires are.

Our Electric Handy Wagon is low enough to be easy to load; strong enough to stand up under any load that any two horses can pull; neat enough to attract every eye and durable enough to last. **OUR STEEL WHEELS** have Staggered Oval Spokes,

WE CAN FURNISH THEM

to fit any old or new wagon, can give you any size of wheel and any width tire desired.

THEY ARE THE BEST WHEELS MADE.

No tires to become loose and reset; no wood spokes and felloes to dry out or rot; no chance to shake loose; impervious to either heat or cold

Easy to draw. Will not cut the ground or rut the road.

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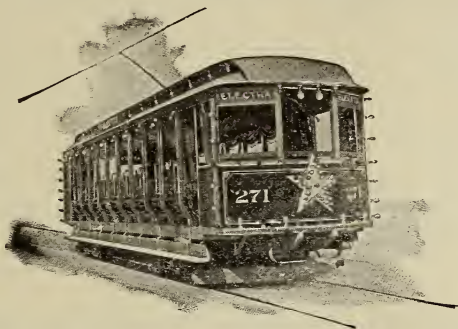
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ELECTRIC STEEL WHEELS

as judged by their reputation and increasing popularity are

The Best Metal Wheels.

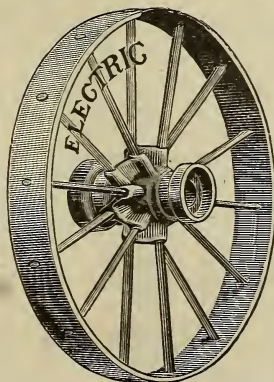
They are made with either direct or staggered oval steel spokes. They are made in any desired height from 20 in. up. They are all broad faced tires, from 2 to 8 inches wide, and

They Will Fit Any Wagon Made.

They are stronger than wood and cannot get loose, break down, rot up or go to "spokes." A set of these wheels makes the old wagon new. They don't cut up the farm either and make the load draw easy.

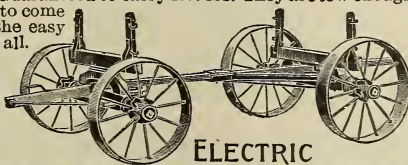
Electric Handy Wagons

are just what their name implies. Low down easy to load handy wagons. The most convenient thing for all farm hauling. Save the labor of an extra man in loading most things. Guaranteed to carry 4000 lbs. They are low enough in price to come within the easy reach of all.



Thousands now in use and demand increasing daily. Don't buy either wheels or wagon until you write us for Catalogue and prices. Sent free to any address.

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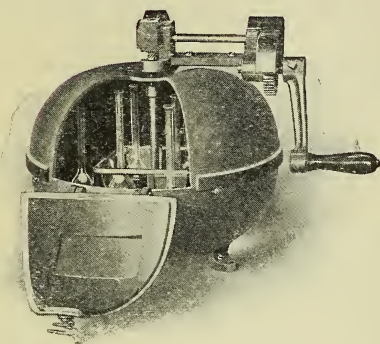
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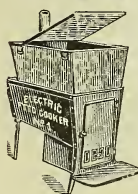


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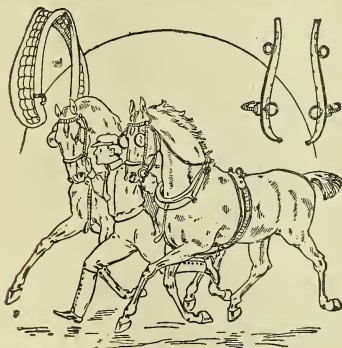
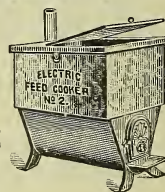
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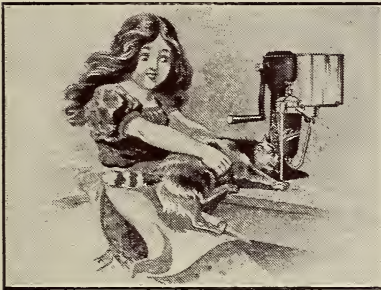
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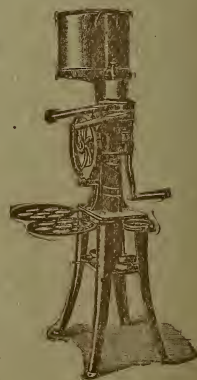
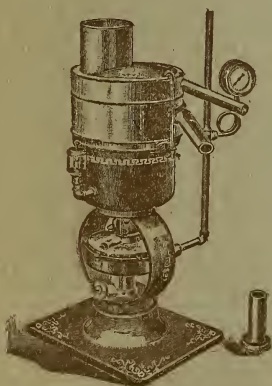
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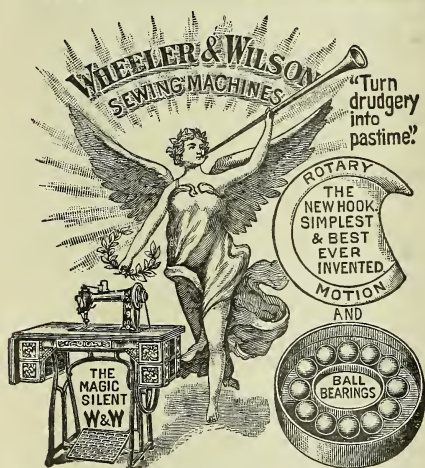


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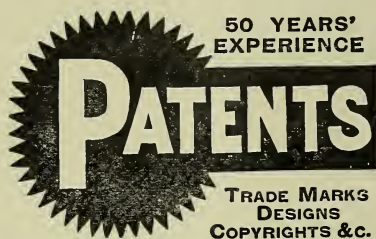
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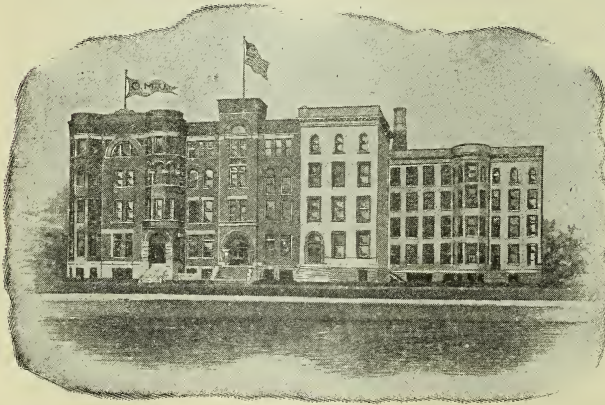
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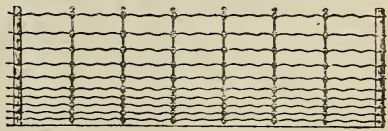
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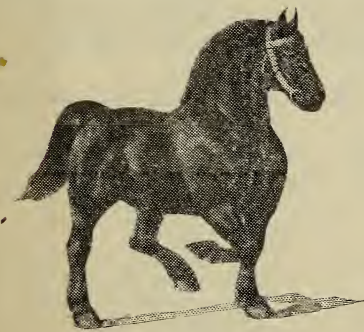


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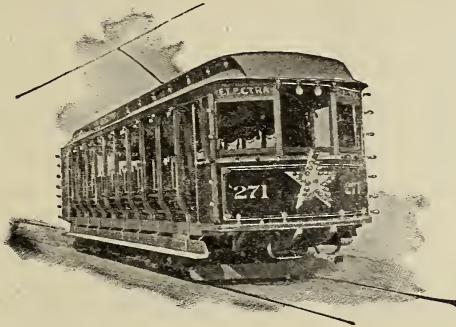
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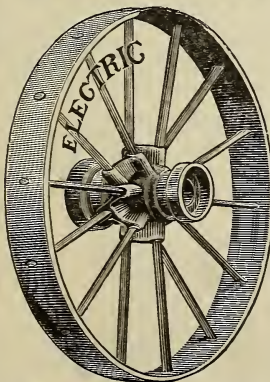
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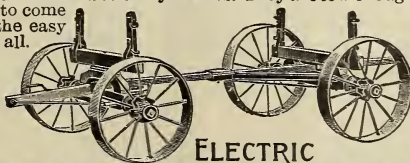
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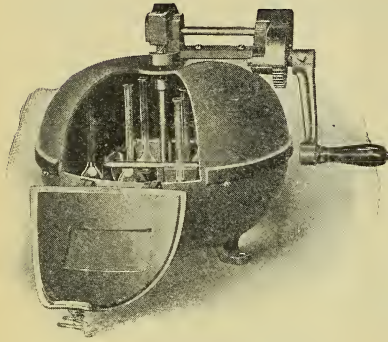
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the kind that never stops growing a minute and which matures at an early age, is the kind that produces the greatest percentage of profit. This problem of quick maturity is solved by

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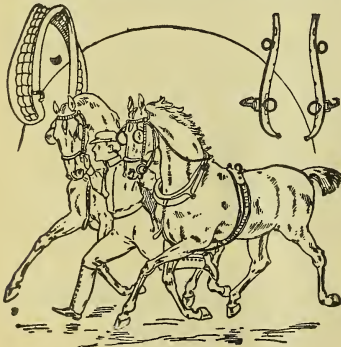
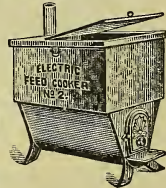
They cook all kinds of stock food, ground or unground, quickly, thoroughly and cheaply. Because of their peculiar construction they require less fuel than any cooker made. They have a dead-air space between the inner and outer plates, which conserves the heat, and thus they

REQUIRE LESS FUEL AND RETAIN THE HEAT LONGER.

Made of best gray iron castings and lined with plates of steel. Boilers of best galvanized steel. Three styles, five sizes—25 to 100 gallons. Free book on "Feed Cooking" sent to all interested parties on application.

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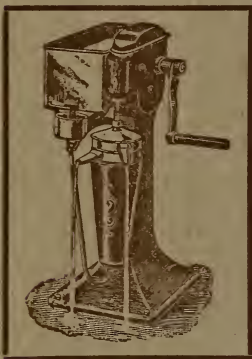
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Just Get
THE FACTS
Then Buy
A TUBULAR SEPARATOR



Get hold of **facts**—hang on with both hands—and you'll make dollars while the dreamer makes cents.

Don't overlook the **fact** that **Tubular Separator** advertisements are the only separator advertisements in which the separator advertised is **described**. The reason is plain—**no other separator compares with the Tubular**—no other separator manufacturers desire a comparison—so **no other separator is described**.

Exclusive Dairy Tubular Points

The **only low supply can**—it's about as low as the door knob. No strain, no slop. The **only separator without oil cups**—all gears enclosed—run in a mist of oil—no oil holes to dig out. The **only simple bowl**—no inside complications. One tiny removable piece inside—no more—bowl can be washed in three minutes. The **only bottom feed**—assists the Tubular to skim faster—to cut any other machine's clean skimming record in half.

If you see a low supply can—no oil cups—simple Tubular bowl—or bottom feed—you see a **Tubular**. No other machine has them—all others are quaint old bucket bowl styles.

WRITE FOR CATALOG "E."

THE SHARPLES CO. | P. M. SHARPLES,
CHICAGO, ILL. | WEST CHESTER, PA.



The U. S. Leads the World

That the U. S. Separator leads all others has been proved so many times that it is a well-established fact. To those who doubt it, we call attention to two very decisive victories:

ONE at the Pan-American Model Dairy, where

The U. S. Won World's Record
with the average test of .0138 for
50 consecutive runs.

THE OTHER the recent competitive test between six different makes of separators at the Kansas State Agricultural College, where

**The U. S. Excelled
All Others**

in the tests of skim milk and total minimum loss, according to Press Bulletin No. 123.

**The U. S. Excels in
Quality also.**



**HIGHEST SCORE AT MINNESOTA STATE FAIR
AND THE MISSOURI STATE FAIR FOR 1903**

in the Dairy Class, was received by butter made from
U. S. Separator Cream.

For reports of many other victories, write for catalogues.

The U. S. is the Safest and Most Durable,
the gears being entirely enclosed in iron casing, making it
impossible for any one to get caught in them and injured.
Don't overlook this point in buying a separator.

We have the following transfer points: Chicago, La Crosse,
Minneapolis, Omaha, Sioux City, Montreal, Quebec, Sherbrooke,
P. Q., Hamilton, Ont.

Address all letters to Bellows Falls, Vt.

Vermont Farm Machine Co.
BELLOWS FALLS, VT.

Vol. X.

FEBRUARY, 1904.

No. 5.

THE AGRICULTURAL STUDENT



DE LAVAL

CREAM SEPARATORS

Are as much superior to other Cream Separators
As such other machines are to Gravity Setting Systems.

A De Laval Catalogue is a Separator Text-Book—To be had for
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The utilization of old and successful principles in a new and more successful manner has enabled us to offer a Cream Separator of higher efficiency than has heretofore been produced.

DO NOT BE SATISFIED with the past merits of any make of Separators, but before you purchase write for full description and carefully investigate our claims for the superiority of the "SIMPLEX" LINK-BLADE MACHINES.

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ALSO MANUFACTURERS OF THE

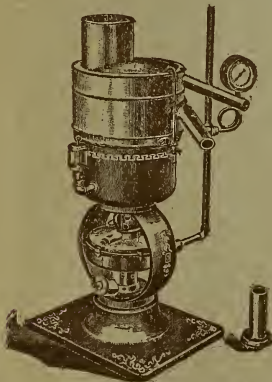
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"B. & W." Check Pumps,

"B. & W." Heaters, etc.

Write for complete catalogue of Apparatus and Supplies for the Dairy, Creamery and Cheese Factory.



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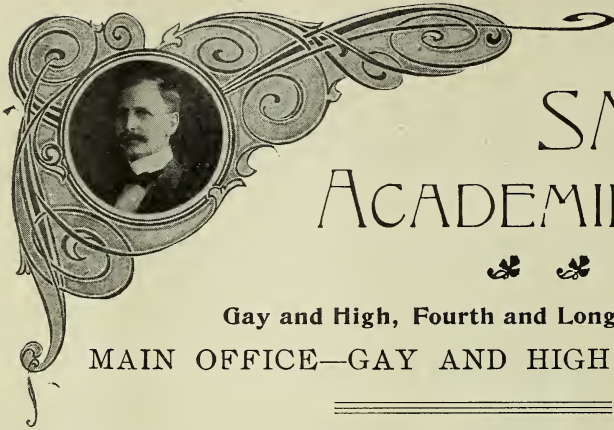
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TUITION THE MOST REASONABLE AND
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Will organize classes as follows: Adult beginners class, Friday evening January 8, 1904.

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Gentlemen, per term of ten lessons \$5.00 Ladies, per term of ten lessons..... \$3.00

Juvenile advance class, Saturday afternoon, 2 o'clock, January 9th, 1904. Juvenile beginners class, Saturday morning, 9 o'clock, January 9th, 1904. **TUITION:** Juvenile beginners, term of 12 lessons \$4.00; Advance \$3.00. Private lessons afternoons or evenings.

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HIGH AND STATE STREETS.

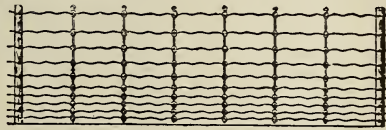
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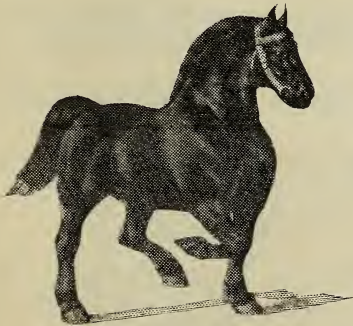
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Ornamental, Field Fencing and Gates.

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At the Show of the SOCIÉTÉ HIPPIQUE PERCHERONNE DE FRANCE, held at Nogentle-Rotrou, from the 18th to the 21st of June, our stallions won Every First prize, over Forty prizes in all. Two Groups were made of our exhibit, on which we won First and Second.

This prize winning importation consisting of one hundred and nine stallions arrived home July 28th, and is by far the best lot of horses ever imported to America. Call on us if your neighborhood needs a good stallion. A catalog and calendar sent on application.

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T. Greiner, a practical and successful gardener, who has been practising and preaching the gospel of good gardening for thirty years, will continue to preach it through the columns of the **Farm and Fireside**. Published by The Crowell Publishing Company, Springfield, Ohio. Address all Orders for above to

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ENTERPRISING MEN to solicit or send us orders for our Lubricating Oils, Greases, and other goods in our line. Men to devote their whole time, and others who are already employed who can give some time or have influence, and are able to divert trade to us. We offer very good inducements to good men and furnish all samples, cases and supplies free of charge. Write for terms.

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A set of Low Steel Wheels with Wide Tires, or the Electric Handy Wagon with Low Wheels will Save 5 times their cost in one year.

That's what our Low Steel Wheels with Wide Tires are.

Our Electric Handy Wagon is low enough to be easy to load; strong enough to stand up under any load that any two horses can pull; neat enough to attract every eye and durable enough to last. **OUR STEEL WHEELS** have Staggered Oval Spokes, **WE CAN FURNISH THEM** to fit any old or new wagon, can give you any size of wheel and any width tire desired. **THEY ARE THE BEST WHEELS MADE.**

No tires to become loose and reset; no wood spokes and felloes to dry out or rot; no chance to shake loose; impervious to either heat or cold.

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Greatest Labor Saver on the Farm.

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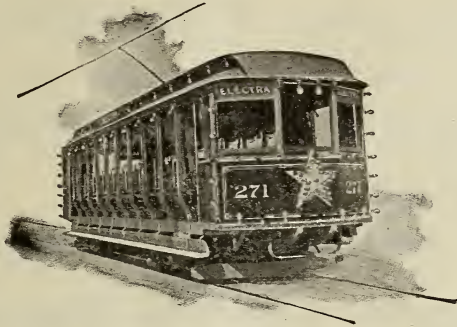
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ELECTRIC STEEL WHEELS

as judged by their reputation and increasing popularity are

The Best Metal Wheels.

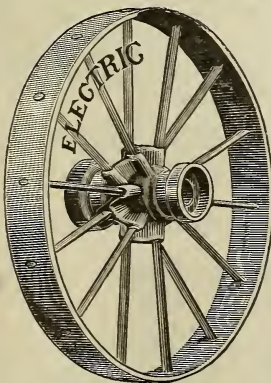
They are made with either direct or staggered oval steel spokes. They are made in any desired height from 20 in. up. They are all broad faced tires, from 2 to 8 inches wide, and

They Will Fit Any Wagon Made.

They are stronger than wood and cannot get loose, break down, rot up or go to "spokes." A set of these wheels makes the old wagon new. They don't cut up the farm either and make the load draw easy.

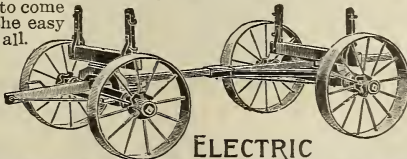
Electric Handy Wagons

are just what their name implies. Low down easy to load handy wagons. The most convenient thing for all farm hauling. Save the labor of an extra man in loading most things. Guaranteed to carry 4000 lbs. They are low enough in price to come within the easy reach of all.



Thousands now in use and demand increasing daily. Don't buy either wheels or wagon until you write us for Catalogue and prices. Sent free to any address.

ELECTRIC WHEEL CO.,
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ZENOLEUM DIP and DISINFECTANT

wish the readers of The Agricultural Student and the many, many friends of ZENOLEUM a very Merry Christmas and a prosperous New Year.

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CHLORO-NAPHTHOLEUM DIP is just as carefully and accurately prepared as a druggist would put up a family medicine.

It contains no poisons or dangerous ingredients and is without question or doubt the very best remedy known to science for the **destruction of lice, disease germs and parasites and the cure of Mange, Itch, Scab, Contagious Abortion and Scours.**

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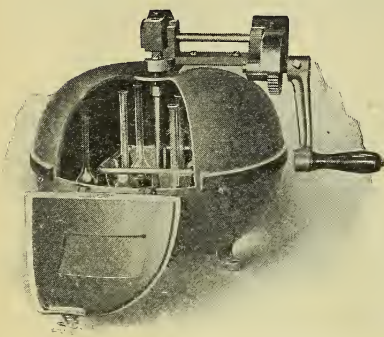
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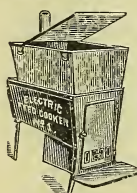
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Gearing all at the top of machine and enclosed in case. Runs with the utmost ease. A speed of 1000 revolutions per minute can easily be reached. Just as accurate results can be obtained as from use of large Turbine machine.

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the kind that never stops growing a minute and which matures at an early age, is the kind that produces the greatest percentage of profit. This problem of quick maturity is solved by

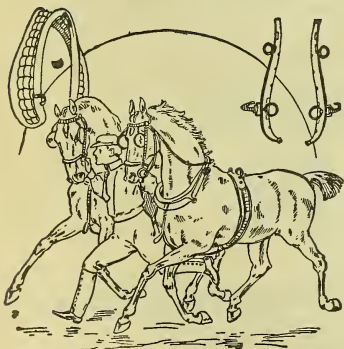
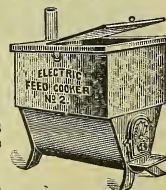
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WM. BURDELL, JR.

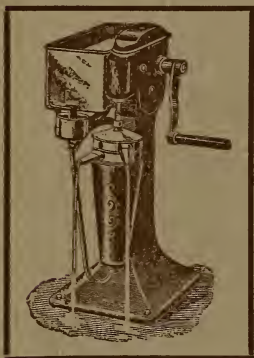
Maker of High-Grade

Buggy, Carriage and Team Harness

Complete Line of Turf Goods, Plush and Fur Robes, Horse Blankets of all kinds. Everything needed for the stable. Hand work only. Send for Catalogue.

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Then Buy
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If you see a low supply can—no oil cups—simple Tubular bowl—or bottom feed—you see a **Tubular**. No other machine has them—all others are quaint old bucket bowl styles.

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THE SHARPLES CO. | **P. M. SHARPLES,**
CHICAGO, ILL. | WEST CHESTER, PA.



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We have the following transfer points: Chicago, La Crosse,
Minneapolis, Omaha, Sioux City, Montreal, Quebec, Sherbrooke,
P. Q., Hamilton, Ont.

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BELLOWS FALLS, VT.

THE AGRICULTURAL STUDENT



DE LAVAL CREAM SEPARATORS

Are as much superior to other Cream Separators
As such other machines are to Gravity Setting Systems.

A De Laval Catalogue is a Separator Text-Book—To be had for
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Makes more milk—more and better meat—Young stock grow faster.

Protein, 27%. Fat, 3%. Carbohydrates, 54%.

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The "Simplex" Link-Blade Cream Separators.

The utilization of old and successful principles in a new and more successful manner has enabled us to offer a Cream Separator of higher efficiency than has heretofore been produced.

DO NOT BE SATISFIED with the past merits of any make of Separators, but before you purchase write for full description and carefully investigate our claims for the superiority of the "SIMPLEX" LINK-BLADE MACHINES.

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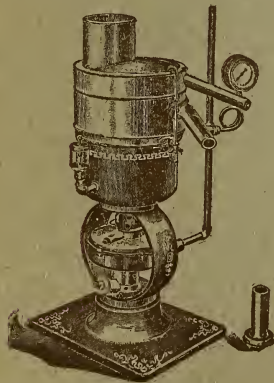
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Write for complete catalogue of Apparatus and Supplies for the Dairy, Creamery and Cheese Factory.



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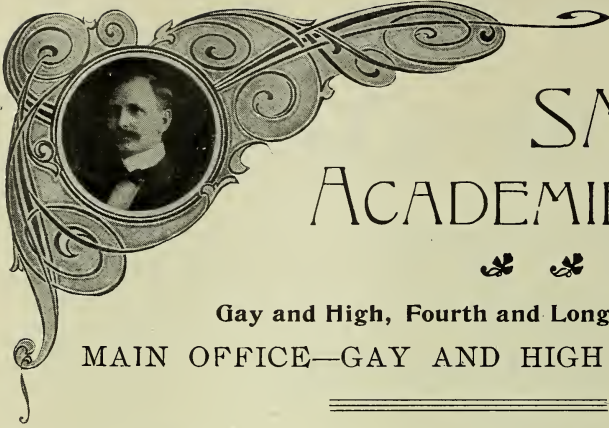
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Gay and High, Fourth and Long, High and Euclid

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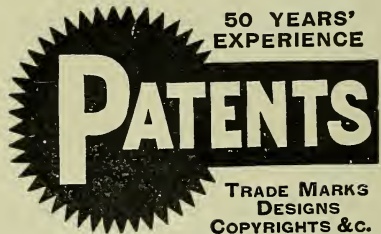
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Will organize the first beginner's class of the New Year, Tuesday evening, January 12th, 1904.

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Will organize classes as follows: Adult beginners class, Friday evening January 8, 1904.

RATES FOR TUITION:

Gentlemen per term of ten lessons \$5.00 Ladies, per term of ten lessons..... \$3.00

Juvenile advance class, Saturday afternoon, 2 o'clock, January 9th, 1904. Juvenile beginners class, Saturday morning, 9 o'clock, January 9th, 1904. **TUITION:** Juvenile beginners, term of 12 lessons \$4.00; Advance \$3.00. Private lessons afternoons or evenings.

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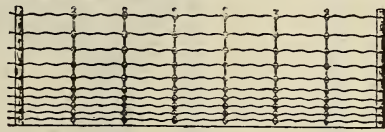
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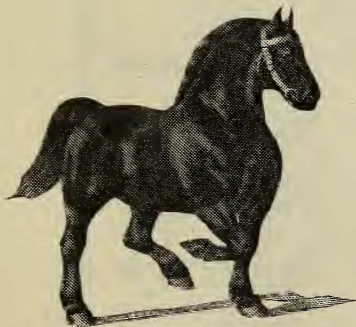


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America's Leading Horse Importers



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This prize winning importation consisting of one hundred and nine stallions arrived home July 28th, and is by far the best lot of horses ever imported to America. Call on us if your neighborhood needs a good stallion. A catalog and calendar sent on application.

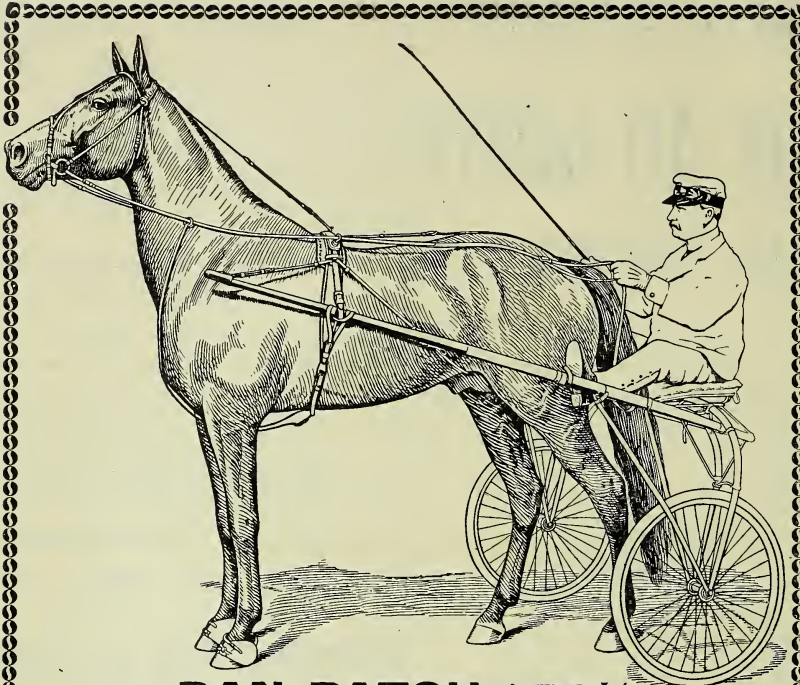
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HE HOLDS THE FOLLOWING WORLD RECORDS:

Mile Record,	1:56 1/4	Half-Mile Record,	0:56
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DAN PATCH HOLDS MORE WORLD RECORDS THAN ANY HORSE THAT HAS EVER LIVED.

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Picture will Not be mailed unless you answer questions.

Largest Stock Food Factory in the World. Capital Paid In, \$2,000,000. Address.... **INTERNATIONAL STOCK FOOD CO., MINNEAPOLIS, MINN., U.S.A.**
DAN PATCH 1:56 1/4, DIRECTUM 2:05 1/4, ROY WILKES 2:06 1/2 Are Owned By INTERNATIONAL STOCK FOOD CO.
Our Stallions, Brood Mares, Colts, Cattle, Hogs, Etc., Eat "International Stock Food" Every Day.

"INTERNATIONAL STOCK FOOD" is prepared from powdered Roots, Herbs, Barks and Seeds, and is a medicinal preparation to be fed in small amounts as an addition to the grain. It purifies the blood, tones up and permanently strengthens the entire system. It aids digestion and assimilation so that each animal obtains more nutrition from the grain eaten. We guarantee that four quarts of oats and one tablespoonful of "International Stock Food" will keep horses in better condition than five quarts without it. International Stock Food is equally good for Horses, Cattle, Sheep, Hogs, Colts, Calves, Lambs and Pigs. It is endorsed by all the High Class Farm Papers and over One Million farmers. It won the highest medal at the Paris Exposition in 1900.

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That's what our Low Steel Wheels with Wide Tires are.

Our Electric Handy Wagon is low enough to be easy to load; strong enough to stand up under any load that any two horses can pull; neat enough to attract every eye and durable enough to last. **OUR STEEL WHEELS** have Staggered Oval Spokes,

WE CAN FURNISH THEM
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THEY ARE THE BEST WHEELS MADE.

No tires to become loose and reset; no wood spokes and felloes to dry out or rot; no chance to shake loose; impervious to either heat or cold

Easy to draw. Will not cut the ground or rut the road.

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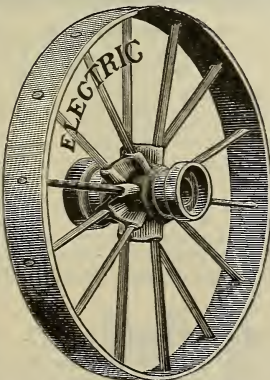
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The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. The lowest rates of fare of any city in the United States. Trolley parties specially cared for by chartered cars.



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ELECTRIC STEEL WHEELS



as judged by their reputation and increasing popularity are

The Best Metal Wheels.

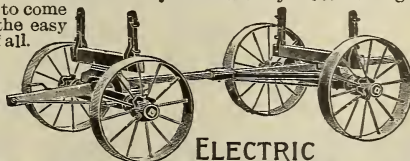
They are made with either direct or staggered oval steel spokes. They are made in any desired height from 20 in. up. They are all broad faced tires, from 2 to 8 inches wide, and

They Will Fit Any Wagon Made.

They are stronger than wood and cannot get loose, break down, rot up or go to "spokes." A set of these wheels makes the old wagon new. They don't cut up the farm either and make the load draw easy.

Electric Handy Wagons

are just what their name implies. Low down easy to load handy wagons. The most convenient thing for all farm hauling. Save the labor of an extra man in loading most things. Guaranteed to carry 4000 lbs. They are low enough in price to come within the easy reach of all.



Thousands now in use and demand increasing daily. Don't buy either wheels or wagon until you write us for Catalogue and prices. Sent free to any address.

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The makers of famous

ZENOLEUM DIP and DISINFECTANT

wish the readers of The Agricultural Student and the many, many friends of ZENOLEUM a very Merry Christmas and a prosperous New Year.

The **Zenner Disinfectant Co.**

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CHLORO-NAPHTHOLEUM DIP EXPERIENCES

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MRS. H. R. KING, Prop.
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Yours truly,
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Profits go Up and Losses go Down

When Chloro-Naphtholeum Dip is used, for it kills the parasites, pests and germs that attack cattle, swine, sheep, poultry and horses, and cures Mange, Itche, Scabs, Contagious Abortion, Hog Cholera, Foot Rot and destroys lice.

Chloro-Naphtholeum Dip

Is sold by representative dealers in sealed trade marked cans, or will be sent upon receipt of the price direct from our nearest distributing depot.

One gallon \$1.50; Five gallons \$6.75, freight paid.

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DANISH BUTTER COLOR

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We will prove to you that our old re-
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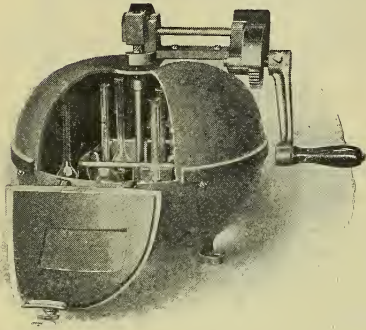
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Eighth Avenue and High Street, and
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"RUNS LIKE A TOP"

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Gearing all at the top of machine and enclosed in case. Runs with the utmost ease. A speed of 1000 revolutions per minute can easily be reached. Just as accurate results can be obtained as from use of large Turbine machine.

Creamery Package Mfg. Co.

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the kind that never stops growing a minute and which matures at an early age, is the kind that produces the greatest percentage of profit. This problem of quick maturity is solved by

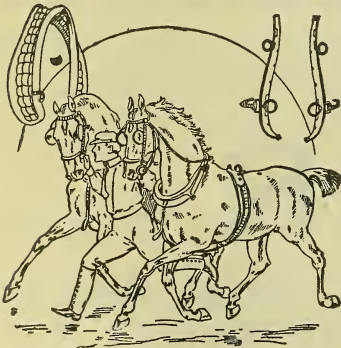
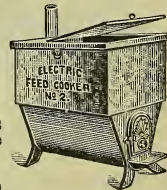
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They cook all kinds of stock food, ground or unground, quickly, thoroughly and cheaply. Because of their peculiar construction they require less fuel than any cooker made. They have a dead-air space between the inner and outer plates, which conserves the heat, and thus they

REQUIRE LESS FUEL AND RETAIN THE HEAT LONGER.

Made of best gray iron castings and lined with plates of steel. Boilers of best galvanized steel. Three styles, five sizes—25 to 100 gallons. Free book on "Feed Cooking" sent to all interested parties on application.

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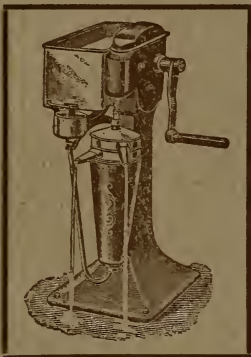
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Complete Line of Turf Goods, Plush and Fur Robes, Horse Blankets of all kinds. Everything needed for the stable. Hand work only. Send for Catalogue.

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Get hold of **facts**—hang on with both hands—and you'll make dollars while the dreamer makes cents.

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Exclusive Dairy Tubular Points

The **only low supply can**—it's about as low as the door knob. No strain, no slop. The **only separator without oil cups**—all gears enclosed—run in a mist of oil—no oil holes to dig out. The **only simple bowl**—no inside complications. One tiny removable piece inside—no more—bowl can be washed in three minutes. The **only bottom feed**—assists the Tubular to skim faster—to cut any other machine's clean skimming record in half.

If you see a low supply can—no oil cups—simple Tubular bowl—or bottom feed—**you see a Tubular**. No other machine has them—all others are quaint old bucket bowl styles.

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THE SHARPLES CO. | P. M. SHARPLES,
CHICAGO, ILL. | WEST CHESTER, PA.



The U. S. Leads the World

That the U. S. Separator leads all others has been proved so many times that it is a well-established fact. To those who doubt it, we call attention to two very decisive victories:

ONE at the Pan-American Model Dairy, where

The U. S. Won World's Record

with the average test of .0138 for 50 consecutive runs.

THE OTHER the recent competitive test between six different makes of separators at the Kansas State Agricultural College, where

The U. S. Excelled All Others

in the tests of skim milk and total minimum loss, according to Press Bulletin No. 123.

The U. S. Excels in Quality also.



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in the Dairy Class, was received by butter made from U. S. Separator Cream.

For reports of many other victories, write for catalogues.

The U. S. is the Safest and Most Durable,

the gears being entirely enclosed in iron casing, making it impossible for any one to get caught in them and injured.

Don't overlook this point in buying a separator.

We have the following transfer points: Chicago, La Crosse, Minneapolis, Omaha, Sioux City, Montreal, Quebec, Sherbrooke, P. Q., Hamilton, Ont.

Address all letters to Bellows Falls, Vt.

Vermont Farm Machine Co.

BELLOWS FALLS, VT.

Vol. X.

APRIL, 1904.

No. 7.

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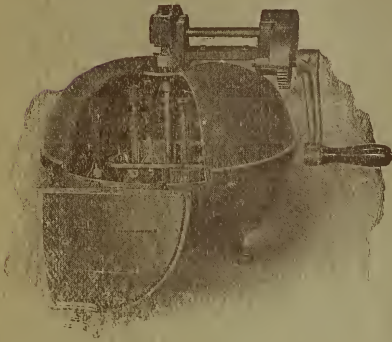
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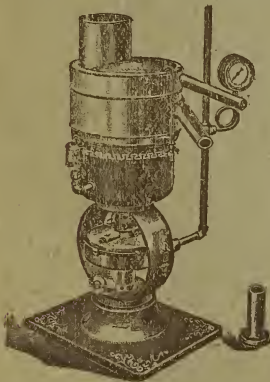
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"Facilie" Babcock Testers,

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GOOD COAL

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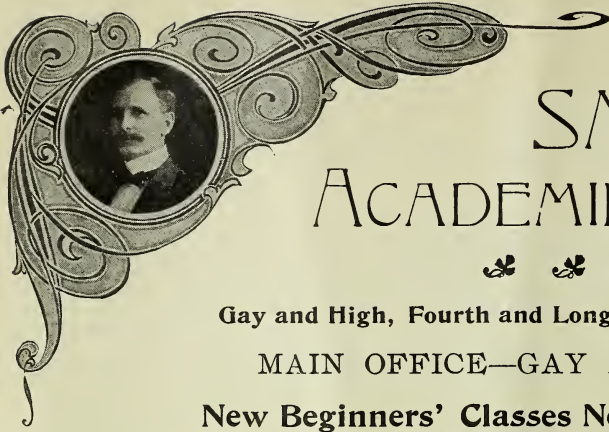
MURRAY CITY COAL CO.

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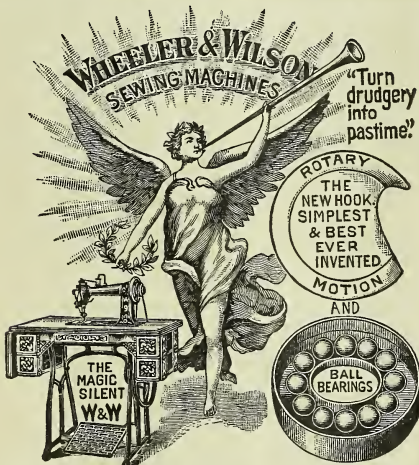
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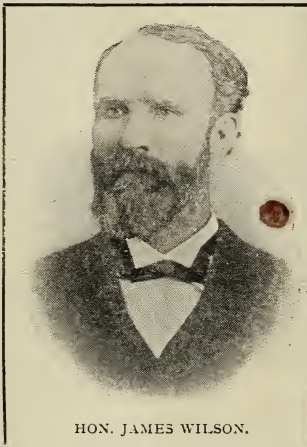


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We want every farmer in America to send us his name for our booklet, describing the new **National Co-Operative Organization** for the benefit and promotion of farm industry. Its purpose is to reduce the discoveries of agricultural scientists to a practical, working basis; to reduce their experiences to forms for every day practice. On the **Epitomist Experiment Station**, with its 650 acres, by the aid and co-operation of thousands of farmers in every part of the country, we are solving the problem of better crops, shorter hours, less labor, bigger profits and a happier life for the farmer. The Epitomist Station is admirably adapted to this all important work. It is the national link between the Government Experiment Stations (with which it co-operates) and the every day farmer.

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the
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Farmer.

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
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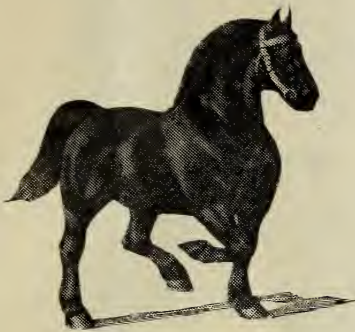
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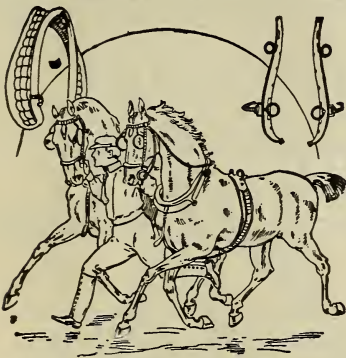
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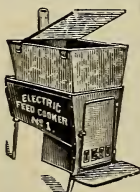
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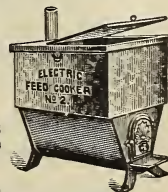
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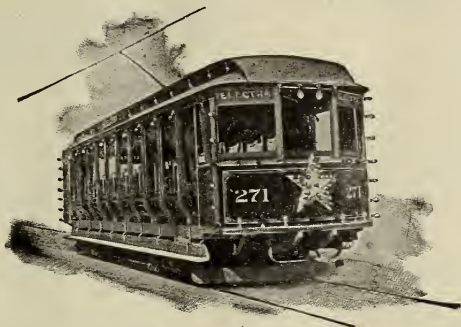


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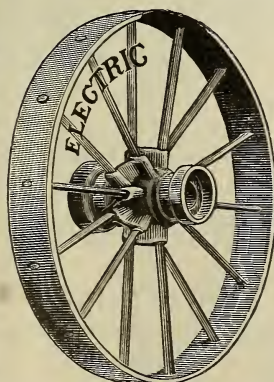
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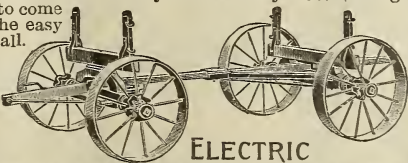
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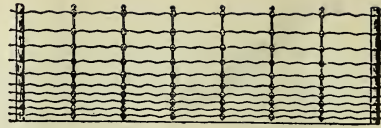


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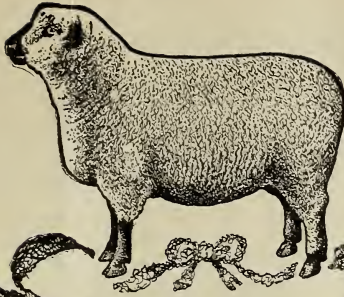
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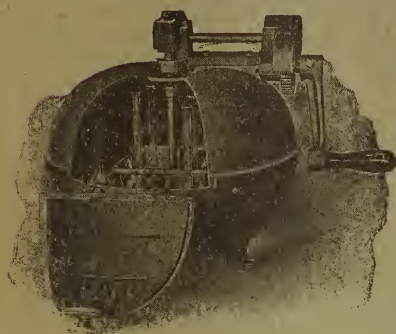
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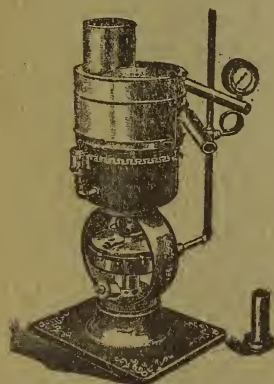
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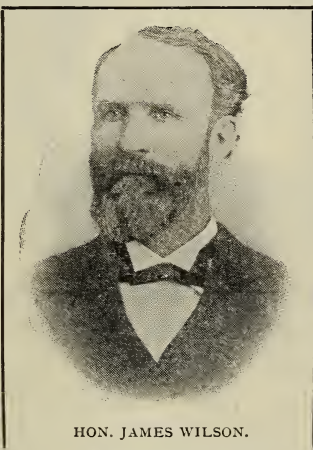
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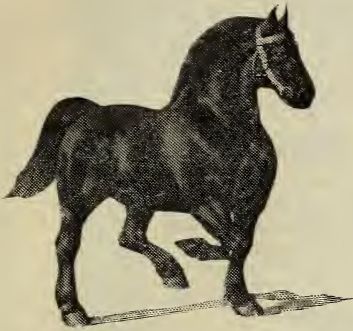
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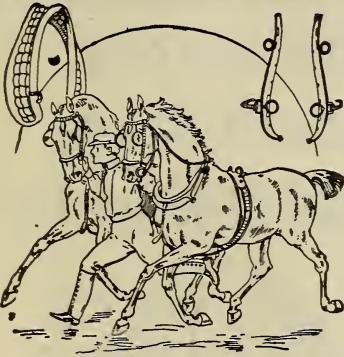
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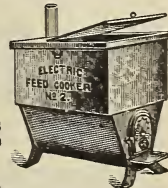
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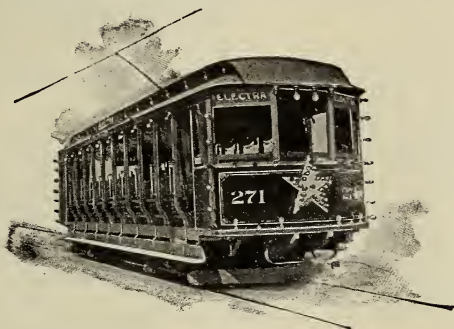
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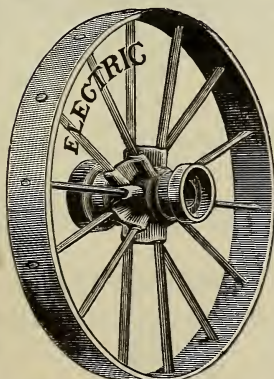
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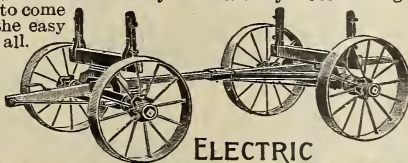
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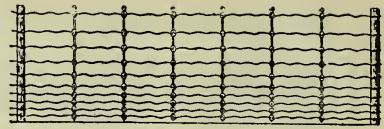


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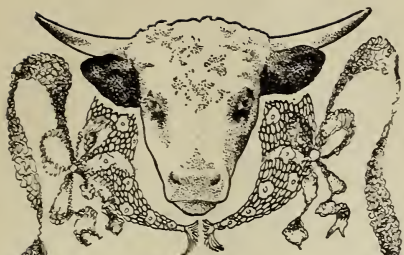
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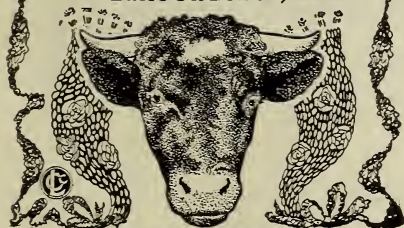
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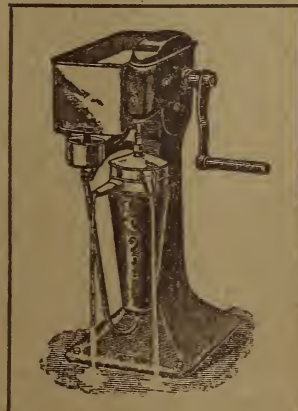
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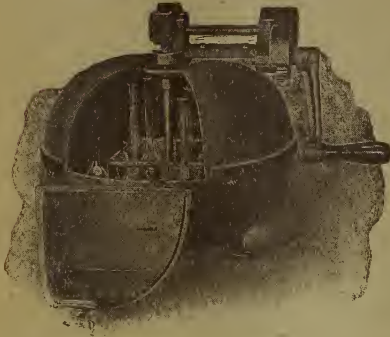
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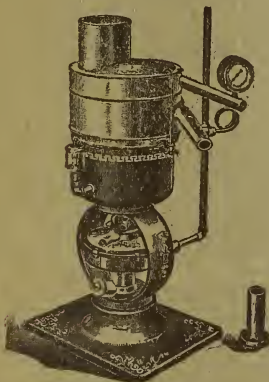
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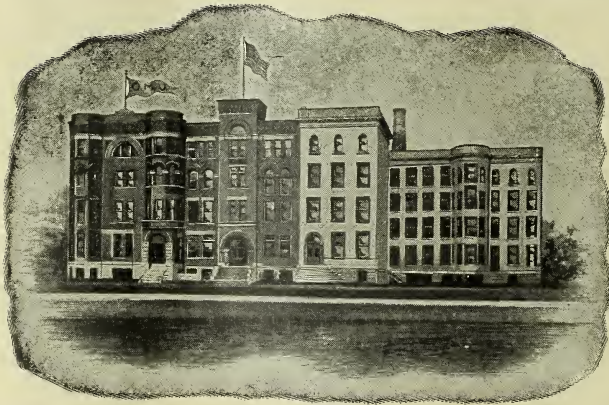
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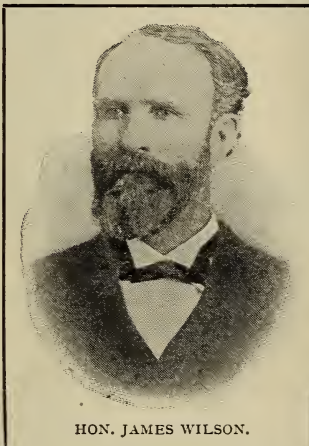


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We want every farmer in America to send us his name for our booklet, describing the new **National Co-Operative Organization** for the benefit and promotion of farm industry. Its purpose is to reduce the discoveries of agricultural scientists to a practical, working basis; to reduce their experiences to forms for every day practice. On the **Epitomist Experiment Station**, with its 650 acres, by the aid and co-operation of thousands of farmers in every part of the country, we are solving the problem of better crops, shorter hours, less labor, bigger profits and a happier life for the farmer. The Epitomist Station is admirably adapted to this all important work. It is the national link between the Government Experiment Stations (with which it co-operates) and the every day farmer.

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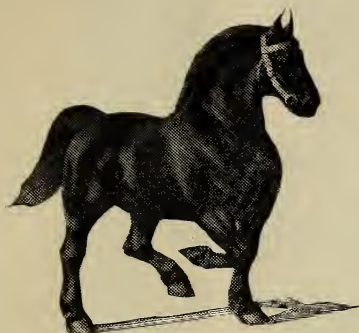
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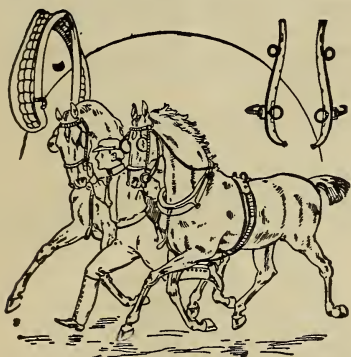
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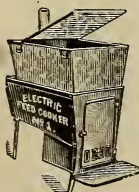
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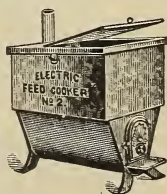
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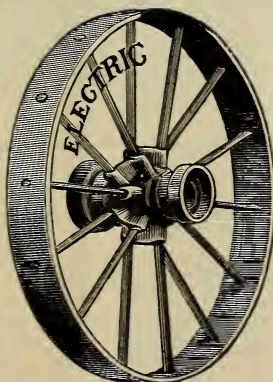
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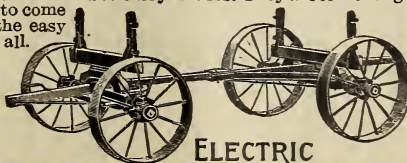
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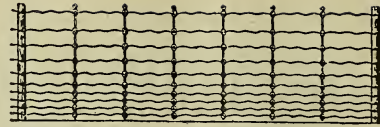


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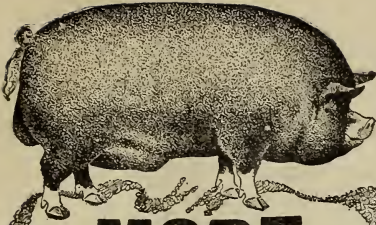


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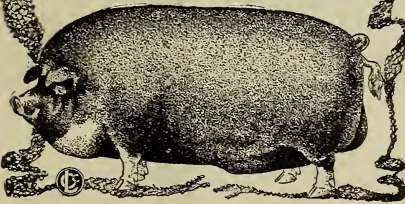
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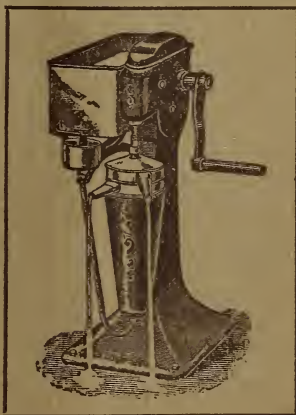
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